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Journal of the Society of Arts.

FRIDAY, JUNE 10, 1859.

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EIGHTH ANNUAL CONFERENCE.

The Institutions in Union are requested to take notice that the Eighth Annual Conference between the Representatives of the Institutions in Union and the Council, will be held on TUESDAY, the 28th inst. (not Monday, the 27th inst., as announced in the last number of the *Journal*), at 10 o'clock in the morning. C. Wentworth Dilke, Esq., Chairman of the Council, will preside. Institutions are requested to forward, as soon as possible, to the Secretary of the Society of Arts, the name of the representative appointed to attend the Conference.

The Chairmen of, or Representatives from, the several Local Boards of Examiners, are invited to attend the Conference.

ANNUAL DINNER.

The One hundred and fifth Anniversary Dinner of the Society will take place at St. James's Hall, Piccadilly, on TUESDAY, the 28th inst., (not Monday the 27th instant, as announced in the last number of the *Journal*), at half-past six for seven o'clock precisely. Members and their friends are requested to take notice that tickets (price 10s. 6d. each) may be had at the Society's House, on and after Monday, the 13th instant. The Right Hon. Lord Napier will preside.

The day fixed for the dinner has been unavoidably altered, owing to a mistake made by the Manager of the Refreshment Department at St. James's Hall.

UNIFORM MUSICAL PITCH.

The Council of the Society of Arts having had brought under their consideration the question of the alteration of the musical pitch by the French Government, and how far such alteration was likely to affect musical performances in England, the Chairman of Council consulted some of the leading musical authorities, and it appearing to be the nearly general wish that a discussion on the subject should take place, the Council invited the following gentlemen to a meeting at the Society's house last Friday, the 3rd inst. The Asterisks indicate those who were present.

Messrs. Addison and Co.
Mr. Anderson.
*Dr. Arnott, F.R.S.
Mr. T. Aston.
Signor Belletti.
*Mr. Jules Benedict.
Prof. Sterndale Bennett.
Messrs. Bishop.
*Mr. H. Blagrove.
*Mr. Bowley.
Mr. W. Broadwood.
*Messrs. Broadwood & Sons.
Sir Benjamin Brodie, Bart., Pres., R.S.
Mr. Brownsmith.
Dr. Zachariah Buck.
*M. Bruzaud, (Messrs. Erards.)
Mr. J. C. Burgoyne.
*Earl Cawdor, F.R.S.
*Rev. W. Cazalet.
Messrs. Chappell and Co.
Mr. J. B. Chatterton.
*Mr. H. F. Chorley.
The Rt. Hon. Sir George Clerk, Bart.
*Rev.. T. A. Cock.
*Messrs. Collard & Collard
Mr. W. Collard.
*Mr. George Cooper.
Mr. Costa.
*Rev. J. E. Cox.
Mr. W. Cusin.
Mr. James Davison.
Mr. Distin.
Miss Dolby.
Prof. Donaldson.
*Rev. G. T. Driffield.
*Mr. H. Sutherland Edwards.
*Mr. John Ella.
Dr. Elvey.
*Lord Gerald Fitzgerald.
Mr. Garcia.
*Mr. Godfrey.
Prof. Goodeve.
*Mr. Otto Goldschmidt.
*Madame Goldschmidt.
Mr. J. Goss.
*Messrs. Gray and Davison.
*Mr. Henry Griesbach.
Mr. C. L. Gruneisen.
Mr. Halle.
Sir John E. Harington, Bart.
Mr. Harper.
The Rev. F. Helmore, M.A.
The Dean of Hereford.
Sir J. Herschell, Bart.
*Messrs. W. Hill & Son.
*Mr. Hogarth.
*Mr. Edward Hopkins.
*Mr. Edward Holmes.
Earl Howe.
Mr. J. Howell.
Mr. T. P. Hudson.
*Mr. John Hullah.
Messrs. Kirkman & Son.
*Mr. John Köhler.
Mr. Lazarus.
Mr. Henry Leslie.
Mr. H. J. Lincoln.
Mr. Charles Lockey.
Mr. Charles Lucas.
*Professor H. Lunn.
Mr. H. Maudslay.
*Messrs. Metzler and Co.
Mr. Alfred Mellon.
Prof. De Morgan, F.R.S.
*Mr. J. Muir.
*Mr. A. Nicholson.
The Duke of Northumberland, Pres. R. Inst.
The Rev. Sir F. Gore Ouseley, Bart.
Mr. John Parry.
Mr. Henry Phillips.
*Mr. William Pole.
Mr. Cipriani Potter.
Mr. and Mrs. Sims Reeves.
Rev. Dr. Rowden.
*Mr. Lindsay Sloper.
*Sir George Smart.
Mr. Henry Smart.
Prof. Edward Taylor.
Mr. J. Turle.
*Mr. J. R. Tutton.
Mr. Simon Waley.
Mr. John Weippert.
*The Earl of Westmoreland.
Prof. Wheatstone, F.R.S.
Messrs. W. Wheatstone and Co.
*Messrs. Wornum & Sons.
Mr. Waddell.
*Messrs. Walker and Co.
Mr. and Mrs. Weiss.
The Rev. Dr. Whewell, F.R.S.
Mr. Williams.
Professor Willis, F.R.S.
Mr. Henry Willis.
Dr. Wylde.

The following Members of Council were present:—

Mr. C. Wentworth Dilke, Chairman.
Mr. Harry Chester.
Mr. J. G. Frith.
Mr. Joseph Glynn, F.R.S.
Mr. W. Hawes.
Mr. F. R. Sandford.
Mr. Thomas Sopwith, F.R.S.
Mr. T. Twining, Jun.

The meeting took place at 4 o'clock, the Rev. Dr. Whewell, F.R.S., Master of Trinity College, Cambridge, in the Chair.

The Chairman said he had been requested by the Council of the Society of Arts to preside over this meeting, which had been called for the purpose of considering the question of a uniform musical pitch. He scarcely knew why he had been selected to fill that position, but he was willing to do all in his power to further the object in view. He could hardly be said to be in any way connected with musical literature, though the author of a well known work, called "Smith's Harmonics," in which there were some curious calculations upon this subject, had formerly occupied the post which he (the Chairman) then held as Maste of Trinity College. He believed that this writer was the first person who determined the pitch by ascertaining the number of vibrations in a second which gave particular notes. This was done in the pipes of the organ at Trinity, and might be said to be the fundamental determination of the pitch in England, so far as mathematical definition was concerned. The subject had recently been more prominently brought before the musical world, in the Report issued by the Commission appointed by the French Government to investigate this question, with the view to the establishment of a uniform pitch to be adopted in that country. In that report, an historical view of the question had been taken, and the number of vibrations of various notes at different periods during the last century and a half had been stated. The question with the Commission was from which of those various numbers the selection was to be made. He had no wish to detain the meeting by remarks of his own upon this subject, as there were many present who had studied it more completely than he had, and who possessed technical knowledge derived from practice, which was not possessed by himself; but he would take the liberty of offering one or two suggestions, with a view of giving some direction to the discussion. The first question to be determined was, whether it was desirable that a uniform musical pitch should prevail; and, secondly, whether it was possible to establish such a uniform pitch in this country. The latter question came before them very naturally, inasmuch as the establishment of a uniform pitch was to be enforced by stringent legal means in France, a course which could not be imitated in this country. The legislative provision upon the matter was that musical instruments not conforming to this regulation, were not to be admitted to any Exhibition of Industry in France. It amounted, in fact, to a prohibition and repression of instruments which were not of the pitch determined upon; and the man who gave false measure in music, was to be dealt with in the same manner as a fraudulent purveyor of meat, or a dishonest vendor of cloth. Of course, it could not be expected that our musical friends in this country were to be subjected to penalties such as those, or that a uniform pitch could be enforced here by any such means. Therefore, they had to consider what means short of these could be used, and whether any influence beyond a general understanding amongst those engaged in music could be brought to bear. These were points upon which those present were well qualified to give opinions, which, he was sure, would be listened to with interest and deference.

Mr. C. WENTWORTH DILKE, Chairman of Council, then read the following letters which had been received from gentlemen unable to attend:—

SIR,—I regret much that I shall be prevented attending the meeting on Friday next. I perfectly concur in the necessity of establishing a uniform Diapason; the high pitch which is being continually raised is most absurd, and detrimental to the voice, wind instruments stringed and keyed instruments. There can be no difficulty in deciding on a given note mathematically for the Diapason. I am, &c.,

CIPRIANI POTTER.

39, Inverness-terrace, Bayswater, W.,
May 30, 1859.

SIR,—Being unfortunately prevented from attending at the invitation of the Council, I write to express my regret, and at the same time to state, that, as regards ourselves, any alteration in the pitch would not be attended with the slightest inconvenience, and I take the opportunity of expressing our entire concurrence in any movement by which one uniform pitch could be established.

I am, &c.,
for Self and Partners, (Messrs. ERARDS),
GEORGE BRUZAUD.

May 30, 1859.

SIR,—I greatly regret my inability to be present at your meeting on Friday. No one can take a more lively interest in the subject-matter to be brought under consideration of the Society of Arts than myself, but unhappily for me I am still suffering from a very severe accident, which makes travelling so great a distance out my power.

Permit me to suggest in the meantime, with great humility, a very simple standard of pitch.

Let a column of air, say an organ pipe of 32 feet long, be put into vibration or undulation, it will be found to give 32 vibrations or undulations at each oscillation of the pendulum. The length in the latitude of London being 39·1393 inches, allowance could easily be made for the slight variation of length in the lower or higher latitudes.

If 32 feet in length = to 32 vibrations, then as the vibrations are inversely as the lengths: a 16 foot pipe = 64 – 8 ft. = 128 – the pitch of the lowest string of a violoncello; computing the vibrations, or undulations, as course and recourse, the pitch adopted in Paris by Rheica in his treatise on harmony.

Will you say to your Committee, with my best compliments, that it would afford me very great pleasure indeed to receive a visit from them at Marchfield House. It would enable me to show them the apparatus used by me for verifying the simple principle to which I have alluded. I am, &c.,

JOHN DONALDSON.

Coltness House, 1st June, 1859.

DEAR SIR,—I regret that my engagements in the provinces deprive me of the opportunity of personally attending at the meeting on Friday next; but I have great pleasure in putting my humble views upon paper. There is no doubt that the Musical pitch has been much elevated during the last quarter of a century, and that some disadvantages result therefrom; but it may be questioned whether greater disadvantages would not now be caused by a resumption of the former pitch, or any depression of it. Many of the wind instruments now in use would be injured, and the Artists put to the expense of new ones. The principal organs in Birmingham, Liverpool, Bradford, and other large towns, would have to be altered at great expense.

All purely orchestral performances would also lose much of their brilliancy in the lowering of the stringed instruments. Many other disadvantages occur to me, and will doubtless be brought to your notice. On the other hand, I am not aware that the proposed alteration would benefit any persons except the singers and the wind instrument makers. But considering that Music is the universal language of Europe, it is desirable to establish a uniform pitch between England and the continent, and I would, therefore, recommend that the pitch now in use at the Royal Italian Opera, Covent Garden, under the direction of M. Costa, Esq., should be established as the definite limit to prevent further elevation. But it must be borne in mind that even this pitch cannot be maintained as an absolute rule throughout an entire evening's performance; the warmth of the temperature and the breath of the performers would have the effect of sharpening the wind instruments and necessarily drawing the rest of the orchestra with them.

Regretting that I have not time to say more on the subject, I am, &c.,

ALFRED MELLON.

Waterloo Hotel, Liverpool, June 1st, 1859.

SIR,—I take the liberty of enclosing a series of figures illustrative of the ratios of vibrations of musical intervals, which I wish to submit to the Council of the Society of Arts.

The plan of representing the length of vibrations by two waved lines intersecting each other was adopted after a trial of several others. It has the advantage of representing the comparative numbers, lengths, and points of coincidental vibrations, of a number of combined sounds, and I think renders the subject easy of comprehension generally. I found the diagrams and power of the eye of great assistance to me in appreciating the comparative numbers and points of coincidental vibration, and possibly they may be of use to others. I think that all professional musical students should be acquainted with the natural laws and phenomena of sound.

At page 29 in the paper that accompanies the figures, the fact of there being no uniform musical pitch is noticed, and a reason given why a certain pitch should be generally adopted, and I trust that this point will be decided at the meeting on Friday next.

With many apologies for the trouble I am giving,

I am, &c.,
J. HENRY GRIESBACH.

19, Carlton-road, Maida Vale W., June 1st.

Sir,—I am sorry that I cannot attend the meeting of the Society of Arts on Friday, for the discussion of the subject of a national standard of musical pitch. I hope, however, that you will have the kindness to inform the meeting, by any means that may be at hand, of my very cordial sympathy in the object proposed.

It appears to me that two courses are open—1st. To adopt the French standard. 2nd. To adopt one slightly differing from it, but more convenient and philosophical, which gives 512 vibrations in a second to the note C. I must confess my leaning to this latter plan. The convenience of such a standard for all purposes of acoustical calculation; its near coincidence with the more arbitrary pitch lately adopted abroad; its well-known suitableness for vocal purposes; its agreement with the pitch which prevailed when the master-pieces of Haydn, Mozart, and Beethoven were produced; all these points seem to me to weigh strongly in its favour, and I feel sure that they must have had weight with Mr. J. Hullah when he adopted this excellent pitch as his standard. I hope he will attend the meeting and press these points.

I am, &c.,
FREDERICK A. GORE OUSELEY.

Tenbury, June 1st, 1859.

Mr. John Parry "regrets that he is not able to be present. Thinks that the object of the meeting is an excellent one, and uniformity of pitch most desirable."

Miss Dolby writes regretting she was not able to attend, and expressing her opinion that a uniform musical pitch would be very desirable.

3, Cheyne-walk, S.W., June 3rd, 1859.

Sir,—I much wish to be present at to-day's meeting of the Society of Arts, when the subject of a uniform pitch, or diapason, is to be considered; but as I believe I shall be unable, I beg to state my opinion that the adoption of such a pitch is most desirable, and that, for the sake of vocalists especially, it ought to be considerably lowered.

I will mention two instances of the inconvenience of having no standard pitch.

A few years ago, when the Royal Society of Musicians used to furnish a band to assist at the Annual Service for the Sons of the Clergy at St. Paul's, it was impossible for some of the instruments to tune down to the pitch of my organ, the consequence being that we were never well in tune together.

So much was this felt that, before one of the anniversary meetings, I received a letter from the secretary (written by order), inquiring if I would have any objection to play all the music a semitone higher. I need not say that I declined to do so, as, in addition to the awkwardness of such an undertaking, the unequal temperament of the tuning would have produced perhaps a worse effect than even the discordancy of pitch first described.

A second occasion was at the funeral of the Great Duke, when much of the effect of some of the wind instruments was lost from the endeavour of the performers to lower their pitch to that of my organ.

Regretting that I am necessitated to be elsewhere, I have the pleasure to subscribe myself,—Yours, &c.

JOHN GOSS.

C. Wentworth Dilke, Esq.

The Chairman inquired whether any gentleman had any motion to submit to the meeting.

The Rev. J. Cox, with a view to introduce the discussion, would propose as a resolution:—

That it is desirable that one uniform musical pitch should prevail.

Sir George Smart seconded the resolution.

Dr. Wylde regarded this question as one, if not of very great importance to the art they professed, at least one of considerable interest to the musical world generally. It was to be remarked that composers—the men who studied the science of music and the poetry of sound—cared very little indeed for these details of the art. It mattered not to them whether a vocalist sang at a pitch which might be a little too high or a little too low, so that they got the right effect from their music. At the same time he thought a uniform pitch should be established, and the profession were very much indebted to the Society of Arts for bringing the subject before them, and particularly to the reverend and learned Master who had kindly undertaken to give them his valuable assistance by presiding on this occasion. When they saw one of the greatest intellects of the age engaged upon such a subject, they of smaller minds ought not to hesitate to go into it, and to endeavour to come to some decision. This was a subject which might be discussed both musically and mathematically. He thought, as regarded the musical part of the question, they, the professors of the art, should come to an understanding amongst themselves as to what the pitch should be, and then hand it over to the mathematicians to say what number of vibrations in a second went to form the note decided upon, so that they might be certain that in future the pitch would neither increase nor decrease. He thought one great reason for the lowering of the pitch in France, was to accommodate it to the provinces. In all the provinces of France were to be found Government music schools established for civil and military purposes, and it having been found on inquiry that the pitch used at most of these establishments was lower than those used at Paris, he thought a low pitch had been decided upon in order to suit their convenience. The necessity for this did not exist in England. There were here no provincial music schools to consult. Whatever was done in music was for the most part done in London, and the provinces being dependent on London for their supply of music, a decision come to in London constituted a law for the provinces. He was not for lowering the pitch, because their ears were accustomed to the present high pitch. He did not desire to lower it, although it sometimes strained the voices of the vocalists, as it would spoil the brilliancy of instruments. He did not wish to discuss the mathematical part of the subject; but he only wished to remark that in some passages in the translation of the report of the French commission, in what they termed the "Normal Diapason," the word tone was used erroneously for that of pitch, tone and pitch having widely different meanings. He presumed the A in this report was the A of the tuning fork. Was he to understand that the table of vibrations alluded to this specific A? The learned chairman had mentioned Dr. Smith, formerly master of Trinity College, as the first person who had made calculations on this point. It appeared to him that according to that calculation, the note which they called D—the D below the treble clef, one-fifth lower than the note given in this paper, gave 262 vibrations in a second. The instrument invented by Ramsden, in 1768, gave as the mean result of several experiments, 284 vibrations in a second. In order to form the scale, the rates of vibrations he believed to be—for the second note as 8 to 9; for the third 5 to 4; for the fourth 3 to 4; and for the fifth 2 to 3. How was it then that the Normal Diapason of the

French gave 870 vibrations in a second? It appeared to him that the English and French calculations did not agree by many vibrations.

The Chairman thought they had better not entangle themselves with matters of harmonics.

Dr. Wylde—Taking it as that A, according to our mathematicians it ought only to give about 852 vibrations in a second.

The Chairman—If they got any one note right, all the rest would come right.

Dr. Wylde—True; but if the difference alluded to was nothing to the mathematician, it was something to the musician. He thought it was a question whether the commissioners had not taken the compound fifth for the perfect fifth, the ratio of which was as 1 to 3, but even then the difference of calculation was very great. He did not wish to say more on the subject, only to call attention to it. He hoped that on the musical question they might come to some decision.

Mr. Hullah thought a uniform pitch was highly desirable, and he had been of that opinion for many years. This was not a new subject to him. As far back as the year 1842, which was about the time when he publicly entered upon that particular work on which he had been engaged the greater part of his life, people applied to him to recommend them tuning forks. On inquiry he found that many of those in circulation, all which were supposed to sound the same note, differed from each other; and, as it was certain that all of these could not be right, so it seemed probable that none of them were so. He then set himself to consider whether there was any particular pitch which, on any account whatever, was more desirable than another. Of course a pitch aspiring to universal adoption, must be regulated eventually by what was convenient to the human voice. But there was a further question; whether, having reference to the scientific part of the subject, there was any particular number of vibrations per second which was more convenient than another for simplifying musical calculations. Nothing was more certain than that a very slight difference, such as 508, 510, or 512 was hardly appreciable by the ear, and was practically no inconvenience to any one. He had found the number of 512 vibrations per second for the C, gave the simplest series of numbers representing the other notes, and was very favourable for musical calculations; at the time of which he was speaking, this pitch was a little above some of those then in use, and a little below others, so far as a correct comparison could be made, for that was a difficult matter. He had then with him a pocket full of tuning-forks which he had collected, and no two of them were alike, except those which had been made to his order by a scientific process. It appeared by the evidence that could be collected, that this number of 512 was a fair mean; it was not inconveniently high for voice, nor inconveniently low for instruments. He put himself in communication with Mr. Tomlinson, a gentleman who he found had given a great deal of attention to the subject. Mr. Tomlinson, on being supplied with one of Cagniard de la Tour's instruments for measuring vibrations, the Sirène, satisfied himself that he could regulate this instrument, which every one knew was very difficult to keep at the same pitch, so as to ascertain what was 512 vibrations per second; and he made certain tuning forks, of which he (Mr. Hullah) had seen and tried hundreds, and he had never found the slightest discrepancy in them, except, he might tell them, on that morning, for the first time in his life. He would mention the circumstance, as it might tend to throw light upon a difficult subject which had very much puzzled him—as to whether or not tuning-forks could be depended upon for any length of time. He tried two of those forks with the greatest care again and again that morning. He then placed one of them upon the hot-plate of a kitchen range, and allowed it to remain until it became heated to such an extent that he could only hold it with a glove on, when he found that the pitch was considerably lowered. That was nothing new: but the extraordinary part of the matter was, that the fork had never since recovered its former pitch, and there was still some little discrepancy between it and the fork which had not been heated. To return to the question before them as to the propriety of a uniform pitch, every one who had been in an orchestra must, he thought, agree that such a pitch was highly desirable; nevertheless, he had found that there were different opinions upon the subject. There was a Sig. Staffa, editor of a musical journal published at Naples, who thought there ought to be no fewer than four pitches, having regard to the different qualities of instruments and voices, viz., two for voices, one for the theatre, and another for the Cathedral, and two for instruments. The writer illustrated his theory by the remark that the weight and elasticity of the air so varied in different climates that music could not be executed at the same pitch in Russia as in Africa. How far that was right he could not say. He would, however, give them an instance of the inconvenience arising from the want of uniformity of pitch in the same city. He had, in St. Martin's Hall, an organ which was tuned a little above the pitch of his own tuning-fork, and might be considered as well up to the average concert-pitch of a few years since. He had never, on any recent occasion, been able to use the organ at morning rehearsal, when the temperature was lower than in the evening. The orchestral performers, for the most part, came with their instruments approximately tuned to the present opera-pitch, and they found it impossible to lower them sufficiently to admit of the organ being used. In the evening the pitch of the organ rose with the temperature of the room, though not always sufficiently to remove altogether the discrepancy between it and the wind instruments, which rose in like proportion, the stringed instruments, of course, being obliged to follow them, at a great sacrifice of strings, which were snapping every few moments. The inconvenience to singers resulting from the present high pitch, was sometimes based upon a supposition, of the soundness of which he was not altogether satisfied. He was quite certain that the pitch had risen during the last five-and-twenty years; but it was doubtful whether, in the last 200 years, the pitch had risen at all. Certainly, he did not believe that the pitch in the seventeenth century was at all lower than it was even now. Mr. Hullah then produced several extracts from pieces of music of that period, and asked who were the persons to sing such passages as were there written even at our pitch, for such voices were never heard in the world. They were by no means exceptional passages; as in the anthem, "They that go down to the sea in ships," which was written for a peculiar voice. But in the music he held in his hand there was a first bass part which went down to D, and this, moreover, in a passage where alteration was impossible. In considering this question he thought they would do well to confine themselves principally to the inconvenience arising from the fact that different performers went continually into the same orchestra—it was not so much the case in London as in the country—and found the instruments at different pitches; and with regard to the organ and pianoforte the inconvenience was of daily occurrence. He thought a uniform pitch was so highly to be desired that whatever the pitch might be—whether the highest ever conceived or the lowest, he would vote for it for the sake of uniformity—though he certainly should prefer, and do his best to bring about the adoption of a pitch considerably lower than that at present in use.

Mr. Nicholson had himself been a sufferer from the variation of the pitch throughout the country, and he had made some experiments to show the absolute necessity, if it could be arrived at, of something like uniformity of pitch. At the close of the London season last autumn, they had three musical festivals in the country, and the difference of pitch between the highest and lowest of the organs used was just a semitone; so that the music played in D at Hereford was played in E flat at Leeds. This variation, as affecting the class of instruments upon which he played was very serious. It was impossible to carry about a case of instruments to suit the various pitches, and the only means they had of meeting the difficulty was by using different reeds. The medium reed was that which was in use seven years ago in the orchestra of London, but within the last three years they had got their reeds from Paris, and these had to be made specially to suit the English pitch. This had an injurious effect upon the tones of the instrument, more especially at the extremes of its compass He did not agree with the suggestion made by Mr. Mellon in his letter, that the highest pitch they now had should be the one adopted. He objected to that for many reasons. He thought those who had had experience of the differences of tone in an orchestra, would bear him out that the high pitch they were at present accustomed to was very disagreeable. It made the stringed instruments anything but brilliant; it reduced the size of the strings, and made the tone wiry, and it destroyed the deep volume of sound. There was one other thing he had noticed, and those present who were interested in the scientific part of the subject might be able to make something of it. That was, that in the orchestra mean pitch there was considerable variation in summer and winter; in other words, the pitch of orchestral performances in which he had played during the winter, was perceptibly lower than during the height of summer. If he were to make a suggestion with regard to the advisability of altering the pitch, he should be in favour of a pitch not too low—something near to that of the Exeter-hall organ, and not quite so low as Mr. Hullah's fork; but certainly between the Philharmonic and opera pitch.

Sir George Smart said the question at present before them was whether a musical fixed pitch was desirable, not what that pitch should be. A standard or fixed pitch was no new idea. It was stated that, in the time of Pope Leo X., it was thought convenient to have a bell or large organ pipe, whereon a person used to sound the tone to the choir at the beginning and end of an anthem, and sometimes in the middle of it, to keep the singers to the right pitch. The same practice was pursued by Benedictine monks, in 1673. Therefore, although this was no new subject, he nevertheless thought it a very important one, and one which he hoped would be settled by this movement in favour of a uniform pitch, which, in his humble judgment was highly desirable. He begged to second the resolution proposed by Mr. Cox.

Mr. Benedict thought that the pitch must be regulated by the human voice. The fact was the voice had been too much neglected of late in favour of instrumental effect. He thought the absence of that purity of intonation which had formerly characterised cathedral singers was mainly to be attributed to the excessive height of the pitch, which imparted a kind of factitious brilliancy to the performances, but detracted from the real purity of sound. He therefore entirely agreed with what had fallen from Sir George Smart and the other gentlemen who had spoken, and he hoped the decision would be in favour of lowering the pitch, and not raising it.

Mr. Ella said he happened to be in Paris at the time the report of the Commission was brought up. He believed the subject had been investigated with much perseverance, and with true love for the art, and that a great deal of time would be saved if, agreeing as he thought all present did, upon the desirability of establishing a uniform pitch, a committee was formed to come to some practical result upon the matter. Whether or not they would decide in favour of the pitch which had been adopted in France he could not say. If they admitted music to be a universal language, it was the more desirable to establish an universal pitch. He had passed 27 years of his life in the orchestras of London; and he thought in dealing with this question, instruments were to be considered rather than voices. Mozart, in his "Zauberflöte," had written a *scena* which very few persons could sing, and there were many similar cases; so that if they took the varying standards of voices, he did not know how they would regulate the standard pitch by them: he thought instruments should establish it. He begged to suggest the propriety of forming a committee to investigate the advisability of adopting the pitch already established in France. He did not say that they ought to adopt that pitch, but he knew that the result had been arrived at after a most diligent investigation of the whole subject, and he thought the question should receive full consideration.

The Chairman gathered from the discussion, as far as it had gone, that the sense of the meeting was, that a uniformity of pitch was desirable, and he thought they need not occupy further time upon that point. With regard to certain difficulties suggested by Mr. Hullah, he thought some of them were to be easily settled. For instance, as to the pitch being higher at the beginning of the last century than it was now—

Mr. Hullah had only said he believed it to have been so.

The Chairman—With regard to the observations of Mr. Nicholson, as to the effect of the difference of temperature in summer and winter upon the pitch, Dr. Smith had alluded to that circumstance in connexion with the pipes of the organ, and he had given the variation in the number of vibrations in the months of November, September, and August, which were found to be in the following ratios:—In November, 254 vibrations; in September, 262 vibrations; and in August, 268 vibrations. As he had already said, he collected that the sense of the meeting was in favour of a uniform pitch. He would now put the resolution which had been proposed to that effect.

The resolution was unanimously passed.

The Chairman said the question which followed upon the preceding one was, what the musical pitch should be. Mr. Hullah having made a decided attempt in that direction, it would be interesting to hear from that gentleman what he had to say in favour of his plan.

Mr. Ella would propose the appointment of a Committee to investigate the pitch which the French commission had established. They had been engaged two years in investigating and discussing the subject, and it was only reasonable to suppose that a vast amount of valuable information had been collected, from some of which it was probable points of value might be gained. It was to be borne in mind, that many of their best orchestral players were Frenchmen. The first oboe at the Italian Opera was a Frenchman, and they always tuned from that instrument.

The Chairman would say that he had never found any good to result from the formation of Committees prematurely before they knew distinctly what they had to determine. He thought they should first hear the arguments for and against the adoption of various pitches.

Mr. Nicholson remarked that the instruments imported from Paris for the use of orchestras in England were in a sharper key than those used in France. Oboes, bassoons, &c., were always made sharper for the English orchestras. An oboe had been lately imported from France which was much flatter than those used in our own orchestras, and it was necessary to have it cut to bring it to the necessary pitch. All the instruments, however, they had from Paris, were generally made with a view to the English pitch.

Mr. Otto Goldschmidt believed that it was agreed on all hands that a uniform pitch was desirable. He ventured to say that the Commission which had sat in Paris was one of the greatest authority; and it was evident from the report which had been put into his hands that day, that they had taken great pains, which might be saved to any future committee that might be appointed. France, whether justly or not, had been considered as the leading power in matters of art, at least so far as the Continent was concerned. According to the information that had been received, it was highly probable that the French pitch as now established would be introduced into all Germany. That perhaps was of no consequence to England; still it tended to prove that it would ultimately become more or less the universal pitch. A friend of his at Munich had written to him to say that he would exert himself to the utmost to get the pitch reduced there, if it were not carried too low. The pitch at Dresden, where they had the finest stringed instruments in the world, within a very few vibrations agreed with the new pitch of Paris, and the rest of Germany was more or less used to a pitch very closely assimilating to that established in France. Of Italy he could not speak, but if this pitch were adopted over the rest of the Continent, it could hardly be supposed that Italy would stand aloof in the general movement, but would also lower her pitch; and if it were lowered, was it not the most natural thing to suppose that they would adopt the French pitch? There ought to be universality in this matter. Music itself was a universal language, and he hoped in this respect it would soon be more harmonious than it was at present. Grand as England was in her musical exertions, he could not conceive that, without any grave reason for it, she would persist in having a pitch exclusively her own. He would say a word with respect to the voice. He did not agree with Mr. Ella that the voice was not to be considered in the settlement of this question. He thought the voice stood paramount. It was clear to every one that the voice could not be altered; and if they looked to the *chefs-d'œuvre* of olden times—he referred to the works of Gluck, Mozart, and Beethoven—there was much music which could not be sung at the present pitch. He hoped this question would be satisfactorily decided.

The Chairman said, without laying claim to any great knowledge of music, he would observe—having read the papers upon the subject which had been put into his hands—that every one must see that there was a perpetual acknowledgment that it was for the interest of the voice to resist that tendency to raise the pitch which had prevailed for a long time. With regard to the propriety of taking the French standard, it must be allowed that being established by so powerful a body of musical influence as was united in producing this report, and so well received as it had been, there was strong reason for their accepting it; and as one who had been engaged in scientific operations of other kinds, he would just give them one word of warning with reference to what took place in another society, with regard to the French metre when that was first established. Some time after this took place, an attempt was made to establish the English standard of measure by the oscillations of the pendulum, and the individual who stood high in the scientific world to whom the experiments were naturally referred, conceived that he had obtained results different from the French, and that therefore their calculations must have been erroneous, when the answer was—"By all means let us have something different from the French." He would merely remark that he thought that was not a wise spirit to act in; and he recommended them to approach the consideration of this question with a disposition rather to adopt, if possible, that which had already obtained a considerable amount of approval, than with a desire to establish anything better, regardless of the merits of the other system.

Mr. Tutton had been connected for twenty-five years with the band of the Horse Guards, during which period the pitch had been getting sharper and sharper. He had with him a little tuning-fork, which represented the pitch established in Belgium, and this was half a tone flatter than the pitch they were at now.

Madame Goldschmidt was of opinion that if the present pitch were adhered to all the voices would be more or less spoiled, and that was one of the reasons why we had so few really good singers. For her own part there was a considerable amount of music that she could not think of singing at the present pitch; and music which she sang with the greatest ease about 12 years ago, when the pitch was lower, she would not now attempt. If the raising of the pitch went on as it had hitherto done, the human voice would lose its beauty and strength; and she did not consider it was proper to tax the voice to that extent. In her opinion the standard of the pitch ought to be regulated by the human voice.

Mr. Goldschmidt did not suggest that they should adopt the French pitch merely because it was French, but chiefly because it was the pitch of the Philharmonic Society and of Broadwood 30 years ago. As it was adopted by France, why should we not also adopt it, especially as it was the good old pitch of olden times?

Mr. Henry Blagrove was decidedly in favour of lowering the pitch. It was certainly questionable whether it would tend to improve his own instrument to lower it, though competent judges of stringed instruments had expressed an opinion that the violin, and its brethren of larger growth, suffered from the present high pitch. He might mention Herr Molique, a good authority on that subject, who considered it was ruining the violin to keep up the pitch to its present height. As regarded the effect of lowering it a little, he thought they would soon get used to it. He considered it would be of the greatest value to have a uniform pitch, and if it were lower than the present one, there would be a strong feeling in favour of it on the part of the organists of cathedrals. Almost all the old organs were very much below the present pitch, very nearly approaching the pitch which was now adopted in France. If they kept up the pitch as high as it now was, it was impossible that these organs could be used in orchestral performances. Mr. Blagrove corroborated Mr. Hullah's statement with regard to the influence of temperature on the pitch of the organ, which caused inconvenience at the morning rehearsals. He believed they would do no practical good until they adopted the French pitch as it now stood. If they recognised the desirability of establishing a uniform pitch, his advice was not to go against their professional brethren abroad. Let them rather go with them if they could. It was true that we owed a great deal to Germany. The finest music known was composed by Germans, and what that nation was likely to do must be taken into consideration; but for his own part he would say that if he were sure the Germans would adopt the French pitch he would have no hesitation in accepting it.

The Chairman was sure the concluding advice of the last speaker would receive due attention. He was afraid that no body of musicians could prevent the pipes of an organ from becoming sharper, or the strings of instruments from getting flatter through the additional heat of the atmosphere in a room; the strings would expand by the influence of heat.

Sir George Smart said Mr. Goldschmidt had alluded to the pitch 30 years ago. He (Sir George Smart) was much concerned in the adoption of that pitch. At that time he found there was a great difference of opinion upon the subject, and he was now delighted to hear Mr. Blagrove pronounce in favour of a lower pitch, for at that time the players of stringed instruments especially were almost universally for raising it. Three of the greatest musicians of the time, viz, Mrs. Billington, Mr. Braham, and Mr. Griesbach assembled at his house, and they determined upon a pitch, the lady acting on the part of the female vocalists, Mr. Braham on that of the male voices, and Mr. Griesbach for the instruments. When those individuals had determined the pitch, he requested Mr. Broadwood to make a fork to that pitch. That fork was sent to Paris during the sitting of the Commission, and it was that which was described in the report as the No. 1 pitch. He granted it was a little flat, but it was purposely so, because, as the Chairman had said, nothing would prevent the rising of the pitch of the pipes of an organ when exposed to a heated atmosphere. It might be difficult in that numerous assembly to fix upon the pitch to be adopted, and if they then came to an agreement upon the subject it could hardly be expected to be satisfactory. He agreed with the remark that had been made, that in the event of a Committee being appointed, it would be well for them to take into consideration what had been said in favour of the French pitch. Doubtless it would be adopted by Germany. He did not say that the French pitch was exactly what it ought to be, but he thought it was very near what he imagined a Committee would decide upon.

The Rev. G. T. Driffield, as a musical amateur, would express a hope that the decision of this meeting would result in the lowering of the pitch which was now prevalent in London. He would urge it with reference to the requirements of the orchestra as well as to the requirements of the human voice, and he spoke the feelings of a large portion of amateurs in the kingdom. He was very much interested in the cause of the human voice, which had undoubtedly suffered by the rise which had been going on in the pitch, and this was more conspicuous in the performance of the chorus parts of the old masters. He especially alluded to what was dear to them all—the works of the immortal Handel. The chorus parts left by that great master had never been heard with all their mellow effects since the pitch was raised to its present scale. Mr. Hullah had expressed a doubt whether the pitch had risen at all during the last 150 or 200 years. He (Mr. Driffield) could not go back to evidence of that remote period, but he could bring forward proofs that during the last 100 years the pitch had risen very considerably. About six years ago he became the purchaser of Handel's own tuning fork, and he had that instrument in his hand. That was evidence of what the pitch was in this country in 1759. It was an A fork. Mr. Driffield also produced another fork, mentioned in the catalogue as being of the same date as that of Handel. The tone was identical, but was an octave lower.

The Chairman thought the point to which the discussion converged was, that it was desirable that a committee should be appointed to report upon the pitch which they recommended to be adopted in England.

Mr. Hullah would be glad to hear from Mr. Walker what would be about the expense, in round numbers, of lowering the pitch of an organ worth £2,000, a quarter of a tone.

Mr. Walker, at a rough guess, should say perhaps £50.

Mr. Davison did not agree with that estimate, for he was convinced that it was very far below the mark. If the pitch were lowered at all in organs, it would be better to lower it half a note, which was the difference between the pitch of the opera orchestra and the proposed French pitch.

Mr. Hullah said this was not strictly so, though it was so within about ten vibrations.

Mr. Davison submitted that the simplest plan would be to transpose the pipes half a note, and put fresh pipes for the lower notes, though in a large organ that would be rather expensive. Of all instruments to be considered in the adoption of a uniform pitch, he thought the organ should especially be taken into account.

Mr. Bowley thought the difficulty in dealing with this question would be to unite a sufficient amount of influence in the musical world generally, so as to lead to the adoption of the views which they decided to be best. Fortunately for us we did not live under the same *régime* as our neighbours across the Channel. We must take a more moderate course. When the organ was placed in Exeter Hall, it was a matter of grave consideration to what diapason it should be tuned, so as to adapt it both to the ancient and modern works which would be performed upon it. They had to reconcile the music of Handel with that of Mendelssohn.

Mr. Blagrove thought if they took the three pitches, Handel's, Sir G. Smart's, and Hullah's, there would be very little difference between them—more especially comparing Hullah's and Smart's. He believed that, within very little, they were identical with the Paris pitch.

Mr. Hullah could assure the meeting that he was not bigoted to any pitch in particular, but he would be delighted to vote for any one upon which they could all agree. The difference between the pitch which had been designated as his and the French pitch, was simply 10 vibrations per second. The French pitch was 522 vibrations per second; his was 512. Practically the difference was hardly appreciable by the ear. He thought if it were an open question to decide between the two pitches, they were so near that it would be wise to decide in favour of the lower pitch, for all the evidence went to show that not only had the pitch a tendency to rise from day to day, but even in the course of an evening, and if they were to reach that pitch which was considered desirable, and to which Madame Goldschmidt had alluded as the one given by nature, the pitch would be lower, and not higher than the present one. He would put on record a remarkable expression which was used some time since by Sir George Smart, in reference to this subject. He said " It is not the Philosopher who has settled the pitch; God Almighty has settled the pitch in making the human voice."

Dr. Arnott said it had been mentioned that great inconvenience had been experienced from the rise of the pitch of the organ in the course of an evening's performance. He thought nothing was easier than to maintain the pitch of the organ by means of an apparatus connected with the bellows communicating with the outer air, and so keeping up a blast of cold air through the pipes, thus preventing their expansion by heat.

Mr. Walker remarked that the cold air must be blown upon the exterior of the pipes as well as upon the interior. Moreover the front pipes of an organ were generally more affected by the heat than the interior pipes.

The Chairman asked whether he was to consider that they had arrived at this point—viz., that it was desirable to appoint a committee to report what pitch they recommended to be adopted. The opinions advanced would find a proper field for discussion in that committee, as well as some other points as yet untouched.

Mr. Tutton remarked that there appeared to be no representative of the important class of wind instruments. If they altered the pitch, they altered the whole construction of wind instruments, as the present wooden instruments could not possibly be adapted to the new pitch, although the brass ones might be. The present clarionets and bassoons were tuned by drawing out the joints, to make them flatter; but if this was done, the ventages should be enlarged, which could not be done upon the existing instruments.

Mr. Harry Chester, as one of the Council, had no desire to interfere in the musical question which now engaged their attention, but he would put it to the meeting whether the recommendations of a Committee, necessarily much smaller than the present assembly, would come with greater authority than a resolution passed by the meeting itself. If they were of opinion that the French pitch was desirable, he would suggest whether they ought not to affirm that by a resolution, rather than defer it to a Committee, whose decision, perhaps not being unanimous, would not come with so much weight as a resolution of this numerous meeting.

Mr. Hullah would like, before the French pitch was adopted, that some person, more conversant with musical calculation than he was, should state what objections—if any—there were to it on that score, because, if not, the difference between that pitch and his was so small, that it might be desirable to adopt the French pitch for the sake of uniformity. He should like to hear the opinion of the Chairman upon this subject before they committed themselves to so important a step.

The Chairman said it might be difficult to find even a small committee in which there would be sufficient unanimity to carry the weight with it which such a decision would require; but, on the other hand, he thought the present meeting was not sufficiently numerous—excluding amateurs like himself—to carry such weight as was requisite for the acceptance of its decision by the musical world at large, especially as it was not understood that the decision of the pitch was to be proposed to the present meeting. With regard to Mr. Hullah's remarks, he would say that every mathematician, at first sight, might have a strong bias in favour of what Mr. Hullah called his standard of 512. Chladni had founded his system upon that number, and no mathematician who expressed the relation of musical notes in numbers could fail to be struck with the advantage for such purposes of that scale, which gave to the middle C 512 vibrations per second. That did not give A a whole number, but it gave a great amount of whole numbers, and in many ways was convenient. Therefore there must naturally be a strong bias in favour of that standard. On the other hand the numerical advantages of the standard were not important. Where the note was determined, they knew what it was by the number of vibrations, whether counted in fractions or decimals, and by that means they could recover the note at any time. Therefore he thought the conveniences and inconveniences were of another kind, and must be considered by practical musicians. The difficulty urged by one speaker that a change of pitch would involve the destruction of a great body of existing instruments was one which must not be overlooked, though some of them no doubt might be modified. The alteration of organs to the new pitch would also be a matter of considerable expense. These were difficulties of far more importance than any want of symmetry in numerical calculations. Still if the French system were adopted over a great part of Europe, so far as there was any perceptible difference between that and 512, musicians would gain more by adopting it than the mathematicians would lose.

Mr. WILLIS said that when he tuned the organ in Exeter Cathedral, he found the pitch to be a semi-tone below Mr. Hullah's fork, and in accordance with that given by Handel's fork. That organ was built in 1669. He (Mr. Willis) had built several organs, and he believed none of them were above Mr. Hullah's fork. Those at Exeter-hall, and at some of the music halls of London, were above it, but as a general rule he believed the organs in the country would be found to be below the standard which Mr. Hullah had given.

Some conversation then took place on questions of detail, when

The CHAIRMAN said it was impossible to settle those minute points here, and he hoped the meeting would arrive at some practical result. He agreed with Mr. Chester that the decision of a Committee might not have the weight of a resolution passed by this general meeting; but the Committee would draw up a report to be submitted to a future general meeting called for that purpose. He thought, under all the circumstances, the appointment of a Committee was the proper course for them to take.

The resolution was then read, and carried unanimously.

"That a Sub-Committee be formed to consider and report what pitch should be adopted."

The following resolution was then proposed and seconded:—

"That the following gentlemen be requested to serve on the before mentioned Committee, and that the Council of the Society of Arts have power to add to or alter such Committee, as may appear to them expedient:—

Dr. ARNOTT, F.R.S.
Mr. JULES BENEDICT.
Professor STERNDALE BENNETT.
Mr. H. BLAGROVE.
Mr. BOWLEY.
Mr. W. BROADWOOD.
M. BRUZAUD (Messrs. ERARD)
Mr. COLLARD.
Mr. COSTA.
Rev. B. MORGAN COWIE.
Professor DONALDSON (Edinburgh).
Rev. G. T. DRIFFIELD.
Dr. ELVEY.
Mr. GODFREY.
Mr. OTTO GOLDSCHMIDT.
Professor GOODEVE.
Mr. F. DAVISON.
Mr. HENRY GRIESBACH.
Mr. J. GOSS.
Mr. HALLE.
Mr. HARPER.
Mr. W. HILL.
Mr. EDWARD HOPKINS.
Mr. CHARLES HORSLEY.
Mr. JOHN HULLAH.
Mr. HY. LESLIE.
Professor LUNN.
Mr. ALFRED MELLON.
Professor DE MORGAN, F.R.S.
Mr. A. NICHOLSON.
The Rev. Sir F. GORE OUSELEY, Bart.
Rev. Dr. ROWDEN.
Mr. W. POLE.
Mr. CIPRIANI POTTER.
Sir GEORGE SMART.
Mr. J. TURLE.
Mr. TUTTON.
Mr. WADDELL.
Mr. WALKER.
The EARL of WESTMORELAND.
Prof. WHEATSTONE, F.R.S.
The Rev. Dr. WHEWELL, F.R.S.
Professor WILLIS, F.R.S.
Mr. HENRY WILLIS.
Dr. WYLDE.

MEMBERS OF COUNCIL.

Mr. C. WENTWORTH DILKE (Chairman).
Mr. HARRY CHESTER.
Mr. W. HAWES.
Mr. F. R. SANDFORD.
Mr. THOS. SOPWITH, F.R.S
Mr. T. TWINING, Jun.

Mr. C. WENTWORTH DILKE proposed a vote of thanks to Dr. Whewell for his kindness in presiding over the meeting, and for the ability with which he had discharged the duties of chairman, which, having been seconded by Mr. Harry Chester, was carried by acclamation, and the proceedings terminated.

EXAMINATIONS, 1859.

PRIZES AND CERTIFICATES AWARDED TO CANDIDATES.*

PRIZES.

Arithmetic ...	1st Prize...	£5	To No. 51—John Palethorp, aged 20, Mechanics' Institution, Glasgow—Clerk
	2nd Prize..	3	,, 439—James Henderson, aged 20, Athenæum, Glasgow—Clerk
Book-keeping	1st Prize...	5	,, 255—Thomas Myers, aged 20, Young Men's Christian Institution, Leeds—Clerk
	2nd Prize..	3	,, 397—Henry Simpson, aged 18, Messrs. Chance's Library and Reading Room, Birmingham—Clerk
Algebra	1st Prize...	5	,, 409—George Hale, aged 18, Athenæum, Bristol
	2nd Prize..	3	,, 288—Hugh Battle, aged 38, Church of England Institution, Leicester—Missionary
Geometry and Mensuration	1st Prize...	5	,, 223—Joseph Benjamin Rundell, aged 25, Pimlico Literary Institution—Clerk
	2nd Prize..	3	,, 267—Alfred Pickard, aged 17, Young Men's Christian Institution, Leeds—Clerk
Trigonometry	1st Prize...	5	,, 409—George Hale, aged 18, Athenæum, Bristol
			No Second Prize Awarded.†

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* The Prizes Awarded to Institutions and Local Boards will be announced in a future number.

† The Candidate standing Second in this Subject did not obtain a First-class Certificate.

Conic Sections	1st Prize...	£5	To No. 409—George Hale, aged 18, Athenæum, Bristol
			No Second Prize Awarded.†
Statics, Dynamics, and Hydrostatics	1st Prize...	5	,, 409—George Hale, aged 18, Athenæum, Bristol
	2nd Prize..	3	,, 302—Charles Herbert Ellerby, aged 17, Mechanics' Institution, Manchester—Mechanical Draughtsman
Practical Mechanics	...		*No Prizes Awarded.*‡
Electricity, Magnetism, and Heat ...	1st Prize...	5	,, 471—Frederick William Rudler, aged 18, Royal Polytechnic Institution Classes—Solicitor's Clerk
	2nd Prize..	3	,, 489—Joseph James Coleman, aged 20, Mechanics' Institution, Halifax—Chemist and Druggist
Chemistry ...	1st Prize...	5	,, 375—Charles Josiah Woodward, aged 20, Birmingham and Midland Institute—Chemical Teachers' Assistant
	2nd Prize..	3	,, 478—Francis Henry Keeble, aged 19, Royal Polytechnic Institution Classes—Cabinet-maker
Animal Physiology	...		*No Prizes Awarded.*‡
Botany	...		*No Prizes Awarded.*‡
Political Economy.........	1st Prize...	5	,, 123—William Martin Wood, aged 30, People's College, Sheffield—Grocer
			No Second Prize Awarded.†
Geography ...	1st Prize...	5	,, 487—William Thomas Dewhirst, aged 17, Mechanics' Institution, Halifax—Telegraph Clerk
	2nd Prize..	3	,, 347—Joseph Harrison, aged 17, Mechanics' Institution, Bradford—Woolsorter
English History	1st Prize...	5	,, 490—Joseph Fox, aged 22, Mechanics' Institution, Halifax—Timber Merchant
	2nd Prize..	3	,, 89—Augustus Meymott Wiele, aged 30, Pembroke Dock Mechanics' Institute—Clerk
English Literature	1st Prize...	5	,, 411—Henri Sundius Vully De Candole, aged 17, Athenæum, Bristol
	2nd Prize..	3	,, 413—Duncan Crookes Tovey, aged 17, Athenæum, Bristol.
Latin and Roman History	1st Prize...	5	,, 413—Duncan Crookes Tovey, aged 17, Athenæum, Bristol.
	2nd Prize..	3	,, 431—William Aitchison Runciman, aged 19, Athenæum, Glasgow—Clerk.
French	1st Prize...	5	,, 32—William Cree Crauford, aged 19, Mechanics' Institution, Glasgow—Clerk.
	2nd Prize..	3	,, 530—Henry Legg, aged 22, Crosby Hall Evening Classes.
German	1st Prize...	5	,, 514—Samuel Lee Cressall, aged 21, Crosby Hall Evening Classes—Clerk.
			No Second Prize Awarded.†
Music	...		*No Prizes Awarded.*‡

† The Candidate standing Second in this Subject did not obtain a First-class Certificate.
‡ No Candidate obtained a First-class Certificate in this Subject.

CERTIFICATES.

The following is an Alphabetical List of the Candidates who have obtained Certificates:—

(1st) after a subject signifies a First-class Certificate (Excellence).
(2nd) ,, ,, Second-class ,, (Proficiency).
(3rd) ,, ,, Third-class ,, (Competency).

(The occupations stated are either present or proposed.)

No.
492—Abbot, James, aged 21, Liverpool Inst., Engineer—Geometry and Mensuration (3rd)
301—Abram, Robert, aged 17, Manchester M. I., Japanner—Arithmetic (3rd)
24—Adamson, John, aged 21, Glasgow M.I., Cashier—French (3rd)
25—Anderson, James, aged 21, Glasgow M.I., Clerk—Algebra (3rd); Geometry and Mensuration (3rd)
112—Anderson, James, aged 37, People's College, Sheffield, Bootmaker—English History (3rd)
357—Anderson, John Broadbent, aged 17, Bradford M.I., Woolsorter—Music (3rd)
188—Anderson, Thomas, aged 19, Aberdeen M.I., Grocer—Arithmetic (3rd)
334—Andrews, Dormer, aged 19, Portsea Watt Inst., Sailmaker's Apprentice—Arithmetic (1st); Algebra (3rd)
281—Anty, George, aged 39, Leeds Young Men's Christian I., Cashier—Book-keeping (3rd)
107—Anty, Samuel Bates, aged 33, People's College, Sheffield, Law Clerk—Arithmetic (3rd); Bookkeeping (3rd)
248—Arthur, William, aged 22, Glasgow M.I., Surveyor and Engineer—Geometry and Mensuration (2nd); Chemistry (2nd)
320—Ashworth, Arthur, aged 19, Manchester M.I., Engineer—Arithmetic (3rd); Algebra (3rd); Geometry and Mensuration (2nd)
210—Atkinson, Henry Dresser, aged 17, Selby M.I., Usher—Algebra (3rd); English Literature (3rd)
73—Aumonier, Frederic, aged 21, London M.I., Salesman at Paper-hanging Warehouse—French (2nd)
312—Ayrton, William, aged 21, Manchester M.I., Clerk—Arithmetic (2nd)
8—Baker, Thomas, aged 17, Blandford Literary I., Chemist and Druggist—French (2nd)
458—Bannister, William, aged 21, Leeds M.I., Slubber—English History (3rd)

298—Barlow, Thomas Kendall, aged 22, Leicester Church of England I., Attorney's Clerk—Arithmetic (2nd) Book-keeping (3rd); Algebra (2nd)
222—Barnish, William Croudson, aged 19, Wigan M.I., Druggist and Grocer—Chemistry (3rd)
26—Barr, George Morrison, aged 22, Glasgow M.I., Land Surveyor—Algebra (3rd); Statics, &c. (2nd)
27—Barr, Thomas Morrison, aged 24, Glasgow M.I., Land Surveyor—Statics, &c. (2nd)
304—Bates, Arthur, aged 21, Manchester M.I., Clerk—French (2nd)
288—Battle, Hugh, aged 38, Leicester Church of England I., Missionary—Algebra (1st) with 2nd Prize; Geometry and Mensuration (1st); Trigonometry (2nd); Conic Sections (2nd)
217—Bedford, Thomas, aged 29, Selby M.I., Teacher—Arithmetic (3rd); Political Economy (3rd)
242—Bell, William, aged 18, People's Reading Rooms, Belfast, Commission Merchant—Political Economy (3rd)
232—Benson, George, aged 17, People's Reading Rooms, Belfast, Clerk—Arithmetic (3rd)
310—Bibby, Maurice, aged 21, Manchester M.I., Clerk—Arithmetic (2nd); Book-keeping (3rd); French (3rd)
196—Bidwell, William Henry, aged 17, Ipswich M.I., Clerk—Arithmetic (3rd); Latin and Roman History (3rd)
308—Birtles, John, aged 22, Manchester M.I., Book-keeper—French (2nd)
102—Blake, Isaac, aged 33, People's College, Sheffield, Clerk and Salesman—English History (2nd); English Literature (2nd)
98—Booth, Frederick, aged 20, People's College, Sheffield, Book-keeper—Book-keeping (3rd)
525—Bound, Edward Charles, aged 17, Crosby Hall Evening Classes, Government Clerk—English Literature (3rd)
534—Brady, James, aged 20, Crosby Hall Evening Classes, Carpenter and Joiner—Arithmetic (2nd); Geometry and Mensuration (3rd)
202—Brammer, John, aged 17, Lockwood M.I., Cloth-dresser—Geography (3rd)
116—Bramwell, John Henry, aged 17, People's College, Sheffield, File-cutter—French (3rd)
376—Branthwaite, Harrison, jun., aged 30, Birmingham and Midland I., Druggist—Chemistry (2nd)
457—Brearley, Robert, aged 25, Leeds M.I., Clerk—Book-keeping (2nd); French (3rd); German (3rd)
476—Bright, William, aged 22, Royal Polytechnic Inst. Classes, Journeyman Brushmaker—Chemistry (3rd)
29—Brodie, William, aged 16, Glasgow M.I., Colour-maker—Chemistry (3rd)
152—Brodie, William, aged 29, Aberdeen M.I., Clerk—Algebra (3rd); Statics, &c. (2nd)
260—Brooke, Henry, aged 18, Leeds Young Men's Christian I., Draper—French (3rd)
498—Brooke, Thomas Willshire, aged 17, Liverpool I., Clerk—Arithmetic (3rd)
480—Brooks, Adam, aged 32, Bury Athenæum, Wheelwright—Arithmetic (3rd)
391—Browett, Alfred, jun., aged 21, Birmingham and Midland I., Manufacturer—English History (2nd)
463—Brown, Joseph Frederick, aged 16, Frome M.I., Military Schoolmaster—Arithmetic (1st)
28—Brown, Robert, aged 17, Glasgow M.I., Clerk—Chemistry (3rd)
243—Browne, David D., aged 23, People's Reading Rooms, Belfast, Teacher—French (3rd)
346—Buckle, Richard, aged 18, Bradford M.I., Grocer—Arithmetic (2nd)
1—Bullock, George, aged 33, Working Men's I., Ashburne, Artist—Animal Physiology (3rd)
372—Bulmer, Richard, aged 18, York Institute, Clerk—Book-keeping (1st)
206—Burgess, Robert, aged 18, Louth M.I., Ironmonger—Statics, &c. (2nd)
380—Butler, James Henry, aged 17, Working Men's College, Birmingham, Presser and Stamper—Arithmetic (1st); Book-keeping (3rd); Algebra (3rd)
422—Cameron, Robert, aged 19, Glasgow Athenæum, Clerk—English Literature (2nd)
355—Chambers, Thomas Hodgson, aged 18, Bradford M.I., Accountant's Clerk—Arithmetic (1st); Book-keeping (3rd)
199—Chapman, Thomas Wood, aged 29, Ipswich M.I., Clerk of Inland Revenue—Arithmetic (1st)
297—Charters, Edward, aged 23, Leicester Church of England I., Warehouseman—Geography (2nd)
128—Cheetham, William, aged 17, Church of England Educational I., Sheffield, Cutler—Algebra (2nd); Geometry and Mensuration (3rd); Trigonometry (3rd)
92—Christie, Charles Augustus, aged 18, Pembroke Dock M.I., Clerk—Arithmetic (3rd); Book-keeping (3rd)
434—Cleland, William Whyte, aged 20, Glasgow Athenæum, Stationer—Arithmetic (2nd)
538—Clements, George Stubbs, aged 24, Crosby Hall Evening Classes, Bank Clerk—Arithmetic (3rd)
529—Clementson, Alfred Bland, aged 18, Crosby Hall Evening Classes, Clerk—Arithmetic (3rd)
412—Clift, Edward, aged 16, Bristol Athenæum—Geometry and Mensuration (2nd); Trigonometry (3rd)
467—Coates, Walter, aged 24, Royal Polytechnic Inst. Classes, Clerk—German (3rd)
446—Cockroft, Edwin, aged 21, Working Men's College, Halifax, Stover—Arithmetic (2nd)
452—Cockroft, Richard, aged 19, Working Men's College, Halifax, Warehouseman—Bookkeeping (1st)
21—Coleman, Frank William, aged 23, Crosby Hall Evening Classes, Teacher—Algebra (3rd); Trigonometry (2nd)
489—Coleman, Joseph James, aged 20, Halifax M.I., Chemist and Druggist—Electricity, Magnetism, &c. (1st) with 2nd Prize.
293—Collins, Samuel, aged 18, Leicester Church of England I., Hosier—Book-keeping (3rd)
544—Conder, James, aged 19, Hitchin M.I., Land Surveyor—English History (3rd)
170—Cooper, Arthur, aged 28, Aberdeen M.I., Labourer—Statics, &c. (3rd); Electricity, Magnetism &c. (3rd)
384—Cope, William, jun., aged 31, Birmingham and Midland I., File Manufacturer—French (3rd)
548—Cornthwaite, Robert, aged 23, Skipton M.I., Book-keeper—Arithmetic (2nd); Algebra (3rd)
186—Cousin, James, aged 17, Aberdeen M.I., Clerk—Arithmetic (3rd)
115—Colver, William, aged 19, People's College, Sheffield, Hosier—French (3rd)
253—Cowell, Charles, aged 19, Leeds Young Men's Christian I., Compositor—English History (3rd); English Literature (2nd)
246—Cowell, Charles, aged 22, Canterbury Church of England Young Men's L.I., Chemist—Arithmetic (2nd)
299—Cox, Samuel, aged 25, Leicester Church of England I., Engineer's Clerk—Book-keeping (3rd)
181—Craig, John, aged 17, Aberdeen M.I., Student—Statics, &c. (3rd)
32—Crawford, William Cree, aged 19, Glasgow M.I., Clerk—French (1st) with 1st Prize.
31—Cree, William McLaurin, aged 25, Glasgow M.I., Jeweller—French (2nd)
514—Cressall, Samuel Lee, aged 21, Crosby Hall Evening Classes, Clerk—Book-keeping (1st); French (2nd); German (1st) with 1st Prize.
494—Cross, Samuel, aged 17, Liverpool I., Clerk—Arithmetic (3rd)

453—Crossley, William, aged 20, Working Men's College, Halifax, Chemist and Druggist—Chemistry (1st)
311—Cuthbertson, John Guthrie, aged 21, Glasgow M.I., Clerk—French (3rd)
283—Dalby, Edward, aged 16, Leeds Young Men's Christian I., Mechanic—Arithmetic (3rd); Practical Mechanics (3rd)
459—Dawson, William, aged 18, Leeds M.I., Engineer—Arithmetic (3rd); Statics, &c. (3rd); Practical Mechanics (3rd)
286—Dean, Thomas, aged 17, Leeds Young Men's Christian I., Clerk—Book-keeping (3rd)
411—De Candole, Henri Sundius Vully, aged 17, Bristol Athenæum—Algebra (3rd); English History (2nd); Latin and Roman History (2nd); English Literature (1st) with 1st Prize.
367—Dempster, Augustus Edward, aged 16, Warminster Athenæum, Architect—Arithmetic (3rd)
487—Dewhirst, William Thomas, aged 17, Halifax M.I., Telegraph Clerk—Geography (1st) with 1st Prize.
71—Dickie, James, aged 20, London M.I., Clerk—Arithmetic (3rd); French (3rd)
224—Donelly, Thomas, aged 18, Banbury M.I., Attorney's Clerk—Arithmetic (3rd); Book-keeping (3rd)
103—Dresser, Thomas, aged 25, People's College, Sheffield, Post-office Clerk—English History (2nd)
518—Driver, Thomas George, aged 18, Crosby Hall Evening Classes, Oilman—Arithmetic (1st)
523—Drury, Henry George, aged 19, Crosby Hall Evening Classes, Clerk—Arithmetic (2nd)
33—Duncan, Henry, aged 18, Glasgow M.I., Civil Engineer—Arithmetic (2nd); Algebra (3rd); Geometry and Mensuration (2nd)
535—Eachus, George Eades, aged 18, Eastern Counties R. and Stratford L.S., Engineers—Algebra (3rd)
483—Edwards, William Evan, aged 21, London Domestic Mission, Solicitor's Clerk—Arithmetic (2nd)
302—Ellerby, Charles Herbert, aged 17, Manchester M.I., Mechanical Draughtsman—Arithmetic (1st); Algebra (3rd); Statics, &c. (1st) with 2d Prize.
505—Evans, Rowland, aged 16, Liverpool I.—Algebra (3rd); Geometry and Mensuration (2nd); Chemistry (3rd)
408—Evanson, Charles Payne, aged 17, Bristol Athenæum—Algebra (3rd); Latin only (1st); Mensuration (2nd)
36—Fairlie, Colin Buchanan, aged 21, Glasgow M.I., Civil Engineer—Arithmetic (1st); Algebra (2nd); Geometry and Mensuration (2nd)
35—Farm, Andrew, aged 28, Glasgow M.I., Pattern Drawer—French (3rd)
256—Fearnside, Edwin, aged 21, Leeds Young Men's Christian I., Book-keeper—Book-keeping (1st)
156—Forbes, Alexander, aged 25, Aberdeen M.I., Clerk—Arithmetic (3rd)
359—Foster, Alfred, aged 20, Bradford M.I., Waste Dealer—Arithmetic (3rd)
536—Fowler, George Cupit, aged 23, Crosby Hall Evening Classes, Oilman—Arithmetic (2nd)
490—Fox, Joseph, aged 22, Halifax M.I., Timber Merchant—English History (1st) with 1st prize; French (1st)
374—Frankland, William, aged 22, York M.I., Joiner—Arithmetic (2nd)
261—Freeman, Edmond, aged 19, Leeds Young Men's Christian I., Draper—French (3rd)
440—French, George J., aged 21, Glasgow Athenæum, Clerk—French (2nd)
90—Froyne, John Charles, aged 24, Pembroke Dock M.I., Shipwright—Algebra (2nd); Trigonometry (3rd)
481—Furness, John Thomas, aged 19, Bury Athenæum, Hatter—Arithmetic (2nd)
423—Gardner, John R., aged 19, Glasgow Athenæum, Clerk—English Literature, (3rd)
403—Genner, Job, aged 19, Messrs. Chance's Library, Birmingham, Clerk—Book-keeping (3rd)
38—Gibb, Thomas, aged 19, Glasgow M.I., Mining Engineer—Arithmetic (2nd)
247—Gibbs, John, aged 36, Chelmsford L. and M.I., Woolsorter—Botany (2nd)
130—Gill, Wm., aged 27, Ch. of Eng. Educational I., Sheffield, Merchant's Clerk—Latin & Roman History (2nd)
81—Gillespie, Thomas, aged 16, Newcastle Church of England I., Clerk—Arithmetic (3rd); Book-keeping (3rd)
295—Gillespie, Richard William, aged 25, Leicester Church of England I., Solicitor's Clerk—Arithmetic (1st)
37—Glen, James, aged 18, Glasgow M.I., Clerk—Arithmetic (3rd); French (2nd)
289—Godfrey, Isaac, aged 17, Leicester Church of England I., Hosier—Arithmetic (2nd)
537—Goldsmith, John Joseph, aged 20, Crosby Hall Evening Classes, Architect's Assistant—Music (3rd)
504—Gordon, Robert, aged 18, Liverpool I., Millwright—Algebra (3rd); Geometry and Mensuration (2nd)
95—Gouldsmith, Henry, aged 17, Pimlico L.S. and M.I., Clerk in an Estate Agency Office—Arithmetic (1st)
436—Graham, Daniel, aged 21, Glasgow Athenæum, Book-keeper—Book-keeping (3rd)
339—Greenhough, John Gresham, aged 16, Bradford M.I., Merchant's Clerk—Arithmetic (1st); Algebra (3rd)
448—Greenwood, Samuel, aged 19, Working Men's College, Halifax, Card Writer—Arithmetic (3rd)
329—Gresty, Jonathan, aged 22, Manchester M.I., Warehouseman—Book-keeping (3rd)
477—Grimson, Samuel Deane, aged 18, Royal Polytechnic Inst. Classes—Geometry and Mensuration (2nd); French (3rd)
517—Grosvenor, Edward, aged 20, Crosby Hall Evening Classes, Compositor—French (2nd)
216—Gutteridge, Michael, aged 16, Selby M.I., Draper—Arithmetic (3rd)
409—Hale, George, aged 18, Bristol Athenæum—Algebra (1st) with 1st Prize; Trigonometry (1st) with 1st Prize; Conic Sections (1st) with 1st Prize; Statics, &c. (1st) with 1st Prize.
417—Hale, Matthew Henry, aged 25, Bristol Athenæum, Clerk—French (1st)
410—Hale, William Wilkins, aged 23, Bristol Athenæum, Custom's Clerk—French (3rd)
291—Hall, James Barlow, aged 22, Leicester Church of England I., Grocer's Assistant—Book-keeping (3rd)
460—Hamilton, Talbot, aged 18, Manchester M.I., Engineer—Arithmetic (1st); Algebra (3rd); Geometry and Mensuration (3rd); Conic Sections (3rd)
292—Hancock, John Henry, aged 18, Leicester Church of England I., Warehouseman—Arithmetic (2nd)
294—Harley, John Charles, aged 18, Leicester Church of England I., Railway Clerk—Arithmetic (2nd)
150—Harrison, George, aged 22, Wakefield M.I., Assistant Surveyor of Taxes—English History (3rd)
347—Harrison, Joseph, aged 17, Bradford M.I., Woolsorter—Geography (1st) with 2nd Prize; English History (3rd)
175—Harrow, George, aged 16, Aberdeen M.I., Clerk—Book-keeping (3rd)
322—Hart, Henry, aged 21, Manchester M.I., Clerk—Book-keeping (2nd)
273—Hartley, William, aged 17, Leeds Young Men's Christian I., Clerk—Arithmetic (3rd); Book-keeping (3rd); Political Economy (3rd)
111—Hasler, John, aged 26, People's College, Sheffield, Planemaker—French (2nd); Germn (3rd)
333—Hawes, John William, aged 16, Watt I., Portsea, Engineer—Arithmetic (2nd); Algebra (2nd); Geometry and Mensuration (2nd)

208—Hay, James, aged 20, Paisley Artizan's I., Apprentice Engineer—Statics, &c. (3rd)

437—Hay, Thomas Hastie, aged 18, Glasgow Athenæum, Clerk—Book-keeping (3rd)

316—Heathcote, William, aged 20, Manchester M.I., Mechanic—Practical Mechanics (3rd)

454—Hebden, William Carr, aged 19, Working Man's College, Halifax, Chemist and Druggist—Chemistry (2nd)

455—Heigham, Thomas, aged 20, Working Man's College, Halifax, Chemist and Druggist—Chemistry (2nd)

439—Henderson, James, aged 20, Glasgow Athenæum, Clerk—Arithmetic (1st) with 2nd Prize; Algebra (3rd); English Literature (2nd)

474—Henshaw, Thomas Pigot, aged 17, Royal Polytechnic Inst. Classes, Clerk—Chemistry (1st)

274—Hick, Thomas, aged 18, Leeds Young Men's Christian I., Teacher—Arithmetic (1st); Algebra (2nd); Geometry and Mensuration (2nd)

110—Hill, Thomas Vardy, aged 21, People's College, Sheffield, Clerk—Arithmetic (3rd)

472—Hind, Francis Henry Philip, aged 17, Royal Polytechnic Inst. Classes, Barrister's Clerk—Chemistry (2nd)

96—Hiscoke, William John, aged 21, Richmond Young Men's Society, Bookseller—Arithmetic (2nd)

365—Hitchcock, William, aged 23, Stanley Library Athenæum, Lynn, Banker's Clerk—Geography (2nd); English History (2nd)

10—Hodgson, James, aged 17, Blackburn M.I., Plasterer—Arithmetic (2nd); Geometry and Mensuration (3rd)

6—Hood, James Wallace, aged 28, S.E. Railway M.I., Ashford, Engine Fitter—Arithmetic (3rd); Book-keeping (3rd)

84—Horz, Conrad, aged 20, Church of England I., Gentleman's Servant—Book-keeping (3rd)

468—Howard, George, aged 19, Royal Polytechnic Inst. Classes, Clerk—Arithmetic (1st); Book-keeping (3rd); French (3rd)

516—Howard, Thomas Ross, aged 23, Crosby Hall Evening Classes, Custom-house Clerk—French (1st)

521—Hughesdon, Joseph Charles, aged 16, Crosby Hall Evening Classes, Clerk—Latin only (2nd)

100—Hutchinson, William Thomas, aged 29, People's College, Sheffield, Butcher—English History (2nd)

262—Illingworth, George, aged 21, Leeds Young Men's Christian I., Mechanic—Arithmetic (3rd); German (3rd)

526—Israel, Henry Ash, aged 19, Crosby Hall Evening Classes, Carcase Butcher and Commission Salesman—Arithmetic (2nd)

469—Israel, Louis Ash, aged 21, Royal Polytechnic Inst. Classes, Commission Salesman—Chemistry (3rd)

479—Jackson, Edmund, aged 24, Bury Athenæum, Schoolmaster—Arithmetic (3rd)

342—Jackson, James Richard, aged 19, Bradford M.I., Working Engineer—Arithmetic (3rd); Geometry and Mensuration (3rd)

219—Jackson, John, aged 18, Wigan M.I., Dispenser—Chemistry (3rd)

418—Jackson, John, aged 18, Glasgow Athenæum, Clerk—Book-keeping (3rd)

496—Jackson, William Robert, aged 19, Liverpool I., Watchmaker—Arithmetic (3rd)

300—Jacob, Edward Westley, aged 19, Manchester M.I., Engineer—Arithmetic (3rd); Algebra (3rd); Statics, &c. (2nd); Chemistry (2nd)

543—Jeeves, Alfred, aged 23, Hitchin M.I., Solicitor's Clerk—Arithmetic (3rd); Book-keeping (3rd)

343—Jowett, James, aged 16, Bradford M.I., Compositor—English History (3rd)

132—Kay, Samuel, aged 19, Church of England Educational I., Sheffield, Edge-tool Striker—Latin and Roman History (2nd)

478—Keeble, Francis Henry, aged 19, Royal Polytechnic Inst. Classes, Cabinet Maker—Electricity, Magnetism, &c. (3rd); Chemistry (1st) with 2nd Prize

350—Kennedy, James, aged 16, Bradford M.I., Clerk—Geography (2nd)

9—Kent, Edwin Giddings, aged 22, L.I., Blandford, Builder—Geography (3rd); English History (3rd)

390—Kidson, Samuel, aged 30, Birmingham and Midland I., Warehouseman—English History (2nd)

23—King, John, aged 22, Carshalton Mutual Improvement Society, Gardener—Book-keeping (3rd)

456—Knapton, William, aged 31, Leeds M.I., Mason—German (2nd)

491—Laurie, John, aged 17, Liverpool I., Architect—Algebra (3rd); Geometry and Mensuration (3rd); Chemistry (2nd)

432—Lawson, William Ramage, aged 18, Glasgow Athenæum, Junior Clerk—Book-keeping (2nd)

445—Leach, John, aged 18, Working Men's College, Halifax, Clerk—Arithmetic (1st); English Literature (3rd)

129—Leadbeater, Edwin, aged 19, Church of England Educational I., Sheffield, Merchant's Clerk—Algebra (3rd); Trigonometry (3rd)

530—Legg, Henry, aged 22, Crosby Hall Evening Classes—French (1st) with 2nd Prize

99—Lenthall, Carter, aged 32, People's College, Sheffield, Warehouseman—Book-keeping (3rd)

421—Linn, William C., aged 18, Glasgow Athenæum, Draper—English Literature (3rd)

280—Lister, Alfred, aged 16, Leeds Young Men's Christian I., Assistant Teacher—Political Economy (3rd)

105—Lister, John, aged 30, People's College, Sheffield, Butcher—Latin, and Roman History (3rd); English Literature (3rd)

149—Logan, Henry, aged 18, Wakefield M.I., Iron-moulder—Arithmetic (2nd); Geometry and Mensuration (2nd)

404—Lovell, Margaret Lydia, aged 18, Bristol Athenæum—French (3rd)

377—Lucas, William, aged 32, Birmingham and Midland I., Cordwainer—Chemistry (2nd)

85—Lyall, William, aged 25, Newcastle Church of England I., Letter-press Printer—Arithmetic (2nd); Algebra (3rd)

21—Marsh, Clement, aged 19, Manchester M.I., Warehouseman—French (3rd)

257—May, Thomas, aged 30, Leeds Young Men's Christian I., Mechanic—Algebra (2nd); Geometry and Mensuration (3rd)

173—McDonald, James, aged 19, Aberdeen M.I., Land-surveyor—Arithmetic (2nd); Algebra (3rd)

41—McDougall, John, aged 25, Glasgow M.I., Mercantile Clerk—Book-keeping (3rd)

174—McHardy, David, aged 20, Aberdeen M.I., Blacksmith—Geography, (3rd)

42—Macdonald, Archibald Simon Lang, aged 19, Glasgow M.I., Mercantile Clerk—Arithmetic (1st); Chemistry (1st)

45—Macintyre, John Stevenson, aged 20, Glasgow M.I., Civil Engineer and Architect—Arithmetic (2nd); Statics, &c. (2nd)

44—Macintyre, Robert, aged 18, Glasgow M.I., Book-keeper—Arithmetic (3rd); Book-keeping (3rd)

43—McIntyre, Robert, aged 21, Glasgow M.I., Brassfounder—Statics, &c. (3rd); Practical Mechanics (3rd)

176—Mackay, Robert, aged 31, Aberdeen M.I., Clerk—English Literature (3rd)

180—Mackillican, John, aged 26, Aberdeen M.I., Watchmaker—Statics, &c. (3rd)

385—Mackintosh, Charles Simmons, aged 30, Birmingham and Midland I., Reader for the Press—French (2nd)

331—Marcus, John Augustus Henry, aged 18, Watt Institute, Portsea—Pattern-maker—Geometry and Mensuration (3rd)

515—Mears, Henry, aged 23, Crosby Hall Evening Classes, Warehouseman—French (3rd)

76—Medcraft, William Miles, aged 32, Sherwood (Battersea) Mutual Improvement I., Assistant Foreman—Geography (3rd)

353—Metcalfe, David, aged 24, Bradford M.I., Cabinet-maker—Arithmetic (3rd)

171—Middleton, William, aged 26, Aberdeen M.I., Clerk—Arithmetic (3rd); Book-keeping (3rd)

340—Midgley, John Whitworth, aged 31, Bradford M.I., House Agent—German (3rd)

509—Millard, John, aged 20, Crosby Hall Evening Classes, Optician—English Literature (3rd)

290—Miles, Alfred, aged 18, Leicester Church of England I., Solicitor's Clerk—Arithmetic (1st)

86—Miller, John, aged 22, Newcastle Church of England I., Engineer—Geography (3rd)

524—Miller, Richard, aged 18, Crosby Hall Evening Classes, Engraver—Arithmetic (3rd)

348—Mills, James, Jun., aged 21, Bradford M.I., Warehouseman—Algebra (3rd)

420—Monro, Alexander, aged 18, Glasgow Athenæum, Merchant's Clerk—Book-keeping (2nd)

538—Monro, William Johnston, aged 16, Glasgow Athenæum, Merchant's Clerk—Book-keeping (1st)

75—Moore, Francis Joseph Thomas, aged 24, London M.I., Book-keeper—Book-keeping (3rd)

234—Morrow, David, aged 24, People's Reading Rooms, Belfast, Clerk—Book-keeping (3rd)

259—Moss, Henry, aged 19, Leeds Young Men's Christian I., Stuff Salesman—French (3rd); German (2nd)

93—Mumford, John, aged 20, Pembroke Dock M.I., Shipwright—Arithmetic (3rd)

255—Myers, Thomas, aged 20, Leeds Young Men's Christian I., Clerk—Arithmetic (1st); Book-keeping (1st) with 1st Prize; Algebra (3rd); Geometry and Mensuration (1st)

406—Nash, Harriet, aged 23, Bristol Athenæum, Governess—French (2nd)

528—Nash, Robert George, aged 39, Crosby Hall Evening Classes, Clerk—Arithmetic (3rd); Book-keeping 3rd)

48—Neil, Thomas, aged 19, Glasgow M.I., Warehouseman—Chemistry (3rd)

5—Nesbit, Thomas, aged 24, S.E. Railway M.I., Ashford, Railway Clerk—Arithmetic (1st); Book-keeping (1st)

451—Norcliffe, James Carr, aged 25, Working Men's College, Halifax, Carpet Weaver—Algebra (3rd)

341—Nuttall, John, aged 18, Bradford M.I., Warehouseman—Algebra (3rd); Geometry and Mensuration (3rd)

266—Oldroyd, Linley, aged 16, Leeds Young Men's Christian I., Architect—Arithmetic (1st); Algebra (3rd)

51—Palethorpe, John, aged 20, Glasgow M.I., Clerk—Arithmetic (1st) with 1st Prize

3—Parkin, Benjamin, aged 17, Working Men's I., Ashburne, Organist—Music (3rd)

507—Parry, John, aged 21, Liverpool Collegiate I., Slate Quarryman—Book-keeping (3rd)

486—Parry, William, aged 21, Liverpool Collegiate I., Book-keeper—Arithmetic (3rd); Book-keeping (3rd)

49—Patrick, Joseph, aged 22, Glasgow M.I., Clerk—French (1st)

323—Payne, George, aged 20, Manchester M.I., Clerk—Book-keeping (3rd)

7—Payne, James, Jun., aged 21, Blandford L.I., Attorney's Clerk—Geometry and Mensuration (3rd)

383—Pearson, Howard Shakspeare, aged 20, Birmingham and Midland I., Merchant's Clerk—French (2nd)

493—Petterson, Richard Daniel, aged 17, Liverpool I., Clerk—Arithmetic (3rd)

138—Phelan, Edmond, aged 16, Waterford M.I., Draper—Arithmetic (2nd)

177—Philip, Anthony Gowan, aged 22, Aberdeen M.I., Apprentice Clerk—French (2nd)

267—Pickard, Alfred, aged 17, Leeds Young Men's Christian I., Clerk—Geometry and Mensuration (1st) with 2nd Prize; Trigonometry (2nd)

250—Pickard, John Wood, aged 24, Leeds Young Men's Christian I., Railway Clerk—Arithmetic (2nd); Book-keeping (1st)

278—Platt, James, aged 18, Leeds Young Men's Christian I., Clerk—Arithmetic (3rd); Book-keeping (3rd)

303—Pogson, John, aged 27, Manchester M.I., Clerk—Conic Sections (3rd); Statics, &c. (2nd)

508—Potter, Frederick William, aged 19, Crosby Hall Evening Classes, Clerk—Book-keeping (2nd); Algebra (3rd)

392—Potter, George Nathaniel, aged 23, Birmingham and Midland I., Brass-founder—English History (2nd)

506—Price, Samuel, aged 19, Liverpool Collegiate I., Clerk—Arithmetic (3rd)

296—Price, William Elias, aged 19, Leicester Church of England I., Clerk—Arithmetic (1st); Algebra (3rd)

52—Primrose, James, aged 20, Glasgow M.I., Working Engineer—Algebra (3rd); Geometry and Mensuration (2nd)

405—Ratcliffe, Mary Matilda, aged 21, Bristol Athenæum—French (2nd)

191—Reed, John, aged 24, West Hartlepool L. and M.I., Clerk—Arithmetic (3rd); Book-keeping (3rd)

520—Rees, Alfred Thomas, aged 17, Crosby Hall Evening Classes, Clerk—Arithmetic (2nd); Latin and Roman History (3rd)

510—Rennick, Charles, aged 23, Crosby Hall Evening Classes, Mercantile Clerk—Arithmetic (3rd); Book-keeping (3rd)

285—Richardson, Charles Luke, aged 22, Leeds Young Men's Christian I., Cloth-drawer—French (3rd)

53—Richardson, James, aged 21, Glasgow M.I., Stationer—French (1st)

430—Richmond, Alexander, aged 17, Glasgow Athenæum, Clerk—Arithmetic (2nd); French (1st)

419—Riley, Alexander, jun., aged 19, Glasgow Athenæum, Merchants' Clerk—Book-keeping (2nd)

54—Rintoul, Robert, aged 20, Glasgow M.I., Clerk—French (2nd)

172—Robb, William, aged 21, Aberdeen M.I., Engineer—Algebra (3rd)

396—Robbins, Thomas, aged 19, Birmingham and Midland I., Clerk—Geography (3rd)

338—Roberts, Joseph Seed, aged 18, Bradford M.I., Cabinet-maker—Geography (1st); English History (2nd)

69—Roberts, William, aged 26, Holmfirth M.I., Woollen Cloth Weaver—Arithmetic (3rd); Algebra (3rd); Music (3rd)

371—Robertson, John, aged 26, York I., Porter—Book-keeping (3rd)

287—Robey, Edward, aged 29, Leicester Church of England I., Schoolmaster—Arithmetic (3rd)

254—Robinson, Charles, aged 22, Leeds Young Men's Christian I., Warehouseman—English History (3rd); English Literature (2nd)

263—Robinson, Joseph, aged 18, Leeds Young Men's Christian I., Clerk—Algebra (3rd)

249—Robinson, Walter, aged 21, Leeds Young Men's Christian I., Mechanic—Arithmetic (3rd)
55—Roger, John Maclaren, aged 17, Glasgow M.I., Engineer—Arithmetic (2nd)
204—Roney, John, aged 17, Louth M.I., Attorney's Clerk—English Literature (3rd)
270—Rose, John, aged 22, Leeds Young Men's Christian I., Book-keeper—Book-keeping (3rd)
318—Royle, William Alfred, aged 18, Manchester M.I., Architect—Geometry and Mensuration (3rd)
471—Rudler, Frederick William, aged 18, Royal Polytechnic Inst. Classes, Solicitor's Clerk—Electricity, Magnetism, &c. (1st) with 1st Prize
223—Rundell, Joseph Benjamin, aged 25, Pimlico Literary I., Clerk—Geometry and Mensuration (1st) with 1st Prize.
431—Runciman, William Aitchison, aged 19, Glasgow Athenæum, Clerk—Arithmetic (2nd); Latin and Roman History (1st) with 2nd Prize
56—Russell, George, aged 19, Glasgow M.I., Mechanical Engineer—Geometry and Mensuration (3rd); Practical Mechanics (2nd)
251—Saville, James Walker, aged 17, Young Men's Christian I., Leeds, Clerk—Geography (3rd)
311—Saunders, George Henry, aged 23, Manchester M.I., Draper—French (2nd)
59—Scott, Alexander, aged 21, Glasgow M.I., Book-keeper—Algebra (2nd)
276—Scott, John Thomas, aged 17, Leeds Young Men's Christian I., Merchant's Clerk—Arithmetic (3rd); Algebra (3rd)
163—Shanks, William Henderson, aged 20, Aberdeen M.I., Clerk—Book-keeping (3rd)
407—Shapland, Catharine Elizabeth, aged 21, Bristol Athenæum—German (2nd)
364—Share, Holditch Hamnett, aged 23, Lynn Athenæum, Merchant's Clerk—Book-keeping (2nd)
366—Shaw, Samuel William, aged 18, Stanley Library, Lynn, Clerk—Arithmetic (3rd); Book-keeping (1st)
244—Shaw, Wilson, aged 16, People's Reading Rooms, Belfast, Clerk—Book-keeping (3rd)
77—Shinn, Thomas, aged 17, London M.I., Clerk—Chemistry (2nd)
118—Shutt, Richard, aged 36, People's College, Sheffield, Saddler—Arithmetic (1st); Latin and Roman History (3rd)
397—Simpson, Henry, aged 18, Messrs. Chance's Library and Reading Room, Birmingham, Clerk—Arithmetic (1st); Bookkeeping (1st) with 2nd Prize
435—Simpson, William, aged 18, Glasgow Athenæum, Clerk—Bookkeeping (2nd)
82—Sinclair, Richard, aged 21, Newcastle Church of England I., Clerk—Book-keeping (2nd)
67—Smith, David, aged 18, Glasgow I., Mechanic—Geometry and Mensuration (3rd)
442—Smith, Henry, aged 18, Working Men's College, Halifax, Warehouseman—Arithmetic (2nd); English Literature (3rd)
179—Smith, James Dear, aged 18, Aberdeen M.I.—Statics, &c. (2nd)
354—Smith, Joseph, aged 22, Bradford M.I., Overlooker—Arithmetic (3rd); Book-keeping (3rd)
65—Smith, William, aged 16, Glasgow I., Junior Clerk—Book-keeping (3rd)
230—Smith, William, aged 16, People's Reading Rooms, Belfast, Assistant Teacher—Arithmetic (2nd); Geography (2nd)
470—Solomons, Albert Elias, aged 19, Royal Polytechnic Inst. Classes, Colonial Merchant—Chemistry (2nd)
185—Souttar, James, aged 19, Aberdeen M.I., Architect—Arithmetic (3rd)
369—Sowden, Thomas Henry, aged 18, York I., Railway Clerk—Arithmetic (1st)
488—Spencer, Henry, aged 18, Halifax M.I., Stock-keeper—Arithmetic (3rd)
447—Spencer, James, aged 25, Working Man's College, Halifax, Porter—Algebra (3rd)
519—Stainburn, George, aged 17, Crosby Hall Evening Classes, Clerk in Customs—English History (3rd)
83—Stanger, John, aged 28, Newcastle Church of England I., Butler—Book-keeping (3rd)
215—Stead, William, aged 22, Selby M.I., Schoolmaster—Arithmetic (3rd); Geography (3rd)
512—Stevens, Daniel Collenette, aged 23, Crosby Hall Evening Classes, Shipbroker—Music (3rd)
531—Stevens, John, aged 30, Crosby Hall Evening Classes, Clerk—Arithmetic (3rd)
57—Stewart, Thomas, aged 19, Glasgow M.I., Clerk—French (2nd)
317—Storer, Joseph, aged 20, Manchester M.I., Book-keeper—Book-keeping (3rd)
499—Sutcliffe, William James, aged 19, Liverpool Collegiate I., Clerk—Arithmetic (2nd); Book-keeping (3rd)
58—Sutherland, John, aged 17, Glasgow M.I., Clerk; Arithmetic (3rd)
461—Swaine, James, aged 18, Frome M.I., Chemist and Druggist—Arithmetic (3rd); Algebra (3rd)
109—Taylor, John, aged 26, Sheffield People's College, Stag-horn Cutter—Latin and Roman History (3rd)
388—Taylor, Reuben, aged 34, Birmingham and Midland I., Law Clerk—English Literature (3rd)
61—Tennent, James Binnie, aged 18, Glasgow M.I., Clerk—Arithmetic (2nd)
264—Tetley, George, aged 17, Leeds Young Men's Christian I., Clerk—Music (3rd)
265—Tetley, William Henry, aged 20, Leeds Young Men's Christian Institution, Stationer and Bookseller—English History (3rd); English Literature (1st)
414—Thomas, Richard Coupland Fleming Antonio, aged 17, Bristol Young Men's Christian Association, Clerk—Arithmetic (3rd); Algebra (3rd)
97—Thomas, Thomas Samuel, aged 17, Richmond Young Men's Society, Tailor—Geography (3rd)
133—Thompson, William Sparrow, aged 20, Waterford M.I., Lithographer—Arithmetic (2nd)
60—Thompson, James, aged 28, Glasgow M.I., Clerk—Arithmetic (1st); Book-keeping (3rd); Statics, &c. (3rd);
413—Tovey, Duncan Crookes, aged 17, Bristol Athenæum—Arithmetic (2nd); Algebra (3rd); Latin and Roman History (1st) with 1st Prize; English Literature (1st) with 2nd Prize
360—Turnbull, John, aged 18, Church of England L.I., Carlisle, Clerk—Arithmetic (3rd)
120—Turner, John, aged 17, People's College, Sheffield, Wire-worker—Arithmetic (3rd)
252—Turner, Thomas Burton, aged 19, Leeds Young Men's Christian I., Solicitor's Clerk—Arithmetic (1st); French (2nd)
545—Unsworth, William, aged 31, Bury Athenæum, Boot and Shoe Maker—Music (2nd)
106—Wade, Henry, aged 27, People's College, Sheffield, Clerk of Works—Arithmetic (3rd)
549—Wade, Robert, aged 20, Skipton M.I., Grocer's Assistant—Algebra (3rd)
319—Wadsworth, Alfred, aged 17, Manchester M.I., Engineer—Arithmetic (3rd)
444—Walker, John, aged 19, Working Men's College, Halifax, Woollen Spinner—English Literature (3rd)
315—Walker, Wm. aged 20, Manchester M.I., Draper's Apprentice—Book-keeping (3rd); Political Economy (3rd)

62—Wallace, Andrew, aged 23, Glasgow M.I., Clerk—Arithmetic (2nd)

433—Wallace, John Scott, aged 21, Glasgow Athenæum, Clerk—Book-keeping (3rd)

464—Walshaw, Thomas, aged 18, Young Men's Christian I., Leeds, Clerk—Book-keeping (3rd)

193—Watson, Robert Long, aged 16, West Hartlepool L. and M.I., Clerk—Book-keeping (3rd)

63—Watt, Alexander, aged 22, Glasgow M.I., Clerk—Arithmetic (3rd); Geometry and Mensuration (3rd)

161—Webster, John, aged 18, Aberdeen M.I., Pattern-maker—Arithmetic (3rd); Algebra (3rd)

94—Whipple, George Mathews, aged 16, Richmond Parochial Library, Junior Assistant at the Observatory, Kew—Arithmetic (2nd); Geography (3rd)

443—Whitaker, Robert, aged 18, Working Man's College, Halifax, Yarn Singer—English Literature (3rd)

279—White, John, aged 18, Young Men's Christian I., Leeds, Machine-maker—Arithmetic (3rd)

352—White, Thomas, aged 18, Bradford M.I., Warehouse Boy—Arithmetic (3rd)

218—Whitehead, William, aged 19, Selby M.I., Book-keeper—Book-keeping (3rd); Geography (2nd)

389—Whitfield, George James, aged 21, Birmingham and Midland I., Surveyor's Clerk—English History (1st)

131—Whitworth, Edwin Charles, aged 25, Church of England Educational I., Sheffield, Cashier—Latin and Roman History (2nd)

330—Wicker, George William, aged 19, Watt Institute, Portsea, Engineer—Book-keeping (2nd); Geography (3rd); French (3rd)

89—Wiele, Augustus Meymott, aged 30, Pembroke Dock M.I., Clerk, Geography (2nd); English History (1st) with 2nd Prize.

351—Wilcock, William, aged 26, Bradford M.I., Estate Agent's Clerk—Animal Physiology (3rd); German (3rd); English Literature (3rd)

127—Wiles, Joseph Jarvis, aged 24, Church of England Educational I., Sheffield, Warehouseman—Arithmetic (2nd)

379—Willis, William, aged 18, Birmingham and Midland I., Mechanical Engineer—Algebra (3rd); Geometry and Mensuration (2nd)

117—Wilson, John, aged 37, People's College, Sheffield, Pen-blade Grinder—Political Economy (2nd); English Literature (3rd)

238—Wilson, Thomas Henry, aged 20, People's Reading Rooms, Belfast, Clerk—Arithmetic (3rd); Book-keeping (3rd)

108—Winder Edmund, aged 33, People's College, Sheffield, Land Surveyor—Geometry and Mensuration (3rd)

101—Wing, John Unwin, aged 18, People's College, Sheffield, Clerk—Arithmetic (3rd); Book-keeping (2nd)

533—Wood, George, jun., aged 33, Crosby Hall Evening Classes, Book-keeper—English History (2nd); French (2nd)

328—Wood, Joseph, aged 17, Manchester M.I., Clerk—Book-keeping (3rd)

358—Wood, Thornton, aged 18, Bradford M.I., Woolsorter—Arithmetic (2nd)

123—Wood, William Martin, aged 30, People's College, Sheffield, Grocer—Political Economy (1st) with 1st Prize; English Literature (3rd)

88—Woodhead, Samuel, aged 32, Northowram M.I., Book-keeper—Arithmetic (2nd); Book-keeping (3rd); Algebra (3rd)

332—Woodman, Samuel James, aged 16, Watt I., Portsea, Engineer's Apprentice—Arithmetic (1st); Algebra (3rd); Geometry and Mensuration (3rd)

74—Woods, Richard Edmund, aged 19, London M.I., Ironmonger—Geography (2nd)

375—Woodward, Charles Josiah, aged 20, Birmingham and Midland I., Chemical Teacher's Assistant—Chemistry (1st) with 1st Prize.

72—Woolnough, Walter William, aged 18, London M.I., Clerk—Arithmetic (3rd); French (3rd)

64—Worth, Charles, aged 22, Glasgow M.I., Royal Engineers—Algebra (3rd); Chemistry (2nd)

22—Wren, William, aged 39, Carshalton Mutual Improvement Society, Gardener—Arithmetic (3rd); Botany (3rd)

271—Wright, John, aged 24, Leeds Young Men's Christian I., Teacher—Algebra (3rd)

345—Wroe, John Clark, aged 18, Bradford M.I., Wool-sorter—Arithmetic (3rd)

190—**Zachariah, John Allison**, aged 24, L. and M.I., West Hartlepool, Watchmaker—Arithmetic (3rd); Book-keeping (3rd)

To Correspondents.

Letters from Mr. H. F. Chorley, and from Mr. Henry Reveley on the "Uniform Musical Pitch" have been received, as well as Mr. Dugald Campbell's letter "On the Relative Values of Coal and Coke, in reply to the letter signed "I.," in last week's *Journal*, but they are unavoidably omitted this week for want of space.

Erratum.—In last number, page 501, col. 2, line 27, for "132" read "13."

MEETINGS FOR THE ENSUING WEEK.

Mon. ......Brit. Architects, 8.
Geographical, 8½. Capts. R. F. Burton and J. H. Speke, "Explorations in Eastern Africa."
Tues. ......Royal Inst., 3. Professor John Morris, "On Geological Science."
Syro-Egyptian, 7½. I. Dr. Lee, Messrs. Sharp and Bonomi, "On the Ancient Egyptian Cubit of the Louvre, and the Palette of an Ancient Theban Scribe, in the Hartwell Museum." II. Mr. J. Bonomi, "Extracts from the Journals of English Residents at Ghadarmes and Diarbekir."
Medical and Chirurg., 8½.
Wed. ......Geological, 8½.
Ethnological, 8½.
Thurs .....Royal Inst., 3. Mr. Austen H. Layard, "On the Seven Periods of Art."
Linnæan, 8. I. Prof. Anderson, "On the East Indian *Salices.*" II. Rev. Mr. Foulkes, "On the Cultivation of the Cocoa-nut in Ceylon." III. Mr. R. Clarke, "On Monocotyledonous Embryos." IV. Mr. Spence, "On *Leopoldina piassaba;* the Palm producing the 'Piassaba of the Rio Negro."
Chemical, 8.
Fri. ......Royal Inst., 8½. Prof. Faraday, "Becquerel's Phenomena of Phosphorescence."
Sat..........Asiatic, 2.
Royal Inst. 3. Mr. J. P. Lacaita, "On Modern Italian Literature."

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, June 3rd*, 1859.]

Dated April 30th, 1859.

1088. A. McKechnie, Carron, Stirling, N.B.—Imp. in hammers and in apparatus for working the same.

Dated 5th May, 1859.

1128. E. T. Hughes, 123, Chancery-lane—Imp. in the manufacture of sheet iron. (A com.)

Dated 6th May, 1859.

1142. T. Jones, Liverpool—An improved apparatus and arrangement of flues for heating and ventilating buildings, ships, and other structures, and for causing draughts in chimnies.

Dated 9th May, 1859.

1160. F. V. Hadlow, 8, Prince Albert-street, Brighton—An improved stamp for marking linen and other wearing apparel.
1162. A. V. Newton, 66, Chancery-lane—An improved construction of lamp. (A com.)
1164. E. T. Hughes, 123, Chancery-lane—Imp. in obtaining motive power. (A com.)
1166. N. Barker, Heyford, and J. A. Carter, Blisworth, Northamptonshire—Imp. in apparatus for lubricating the pistons of steam engines.

Dated 10th May, 1859.

1168. R. J. Lees, Woolley Bridge, near Hadfield, Derbyshire—Imp. in steam generators or boilers.
1170. M. Defries, Houndsditch—Improved apparatus for regulating the pressure of gas.
1172. R. Thomson, Glasgow—Imp. in shuttles.
1174. M. Henry, 84, Fleet-street—Imps. in heating and in supplying air, and in the apparatus employed therein, part of which improvements is also applicable to exhausting fluids. (A com.)

Dated 11th May, 1859.

1178. A. Manbré, 10, Rathbone-place, Oxford-street—An improved method of extracting and purifying sugar, called glucose and 'sirop de fecule,' from potatoes or fecula, or starch or dextrine for the purposes and uses of brewers, distillers, vinegar makers, colouring makers, or otherwise.
1180. T. P. Bennett, Gilnow Mills, near Bolton-le-Moors, Lancashire—Certain imps. in or applicable to carding engines.
1182. H. Clarke, Wakefield—Imp. in balancing mill-stones to the running as well as the standing state. (A com.)
1184. C. F. Vasserot, 45, Essex-street, Strand—An improved musrol or noseband for horses' bridles. (A com.)
1186. W. Salter, jun., Lea, Wilts—Imp. in hay-making machines.
1188. J. B. Lyall, Castle Frome, Hereford, and W. Campin, Strand—Imp. in the "saloon" omnibus and other omnibuses, the wheels and springs whereof, and mode of attaching them, being applicable to other carriages.

Dated 12th May, 1859.

1190. J. Saxby, Brighton—Imp. in the mode of securing the rails on railways.
1191. R. A. Brooman, 166, Fleet-street—Imp. in machinery for solidifying, pressing, and moulding. (A com.)
1192. A. P. Rochette, Brighouse, Yorkshire—An imp. in the manufacture of soft soap.

Dated 13th May, 1859.

1196. T. Scott, Rouen, France—An improved surface condenser and refrigerator.
1198. J. F. Allender, Brierley Hill, Staffordshire, and J. Richards, jun.—Imp. in furnaces for puddling iron.
1200. R. Gourlay, Glasgow—Imp. in making moulds for casting.
1202. R. A. Brooman, 166, Fleet-street—Imp. in cooking, preserving, and drying animal and vegetable substances. (A com.)
1204. W. S. Thomson, St. Martin's-le-Grand—Imp. in the manufacture of hooped skirts. (Partly a com.)
1206. G. R. Clover, Liverpool—Imp. in ships' night signals.

Dated 14th May, 1859.

1208. M. Leahy, 53, Hereford-road, Westbourne-park—Imp. in apparatus for facilitating the draught of carriages.
1210. D. Smith, Glasgow—Imp. in projectiles for fire-arms.
1212. E. Maw, Doncaster Iron Works, Yorkshire—Imp. in the construction of buildings made of iron or other metals.

Dated 16th May, 1859.

1214. S. C. Sheard, Smethwick, Staffordshire—Certain imp. in fire-bars, which are applicable to all furnaces where great heat and economy of fuel are required.
1216. W. Midworth, Newark-upon-Tent, Nottinghamshire—An improved iron for the use of laundries, tailors, or other purposes.
1218. J. Clark, Glasgow—Imp. in envelopes, and in machinery or apparatus for gumming, embossing, folding, counting, and otherwise treating the same, in part applicable in the treatment of note and other writing paper.
1220. W. E. Gedge, 4, Wellington-street South, Strand—Imp. in mixing, combining, and otherwise treating certain matters and substances for the production of manure. (A com.)

Dated 17th May, 1859.

1222. L. D. Owen, 192, Tottenham Court-road—An improved menstrual receiver or truss. (A com.)
1223. J. Brown, jun., Rotherham, Yorkshire—Imp. in buffers, draw springs, and bearing springs.
1224. A. R. L. P. Gras, and A. L. A. Boucherie—Distilling schist or boghead coal and other minerals for lighting.
1225. H. Dolley, Paris—An imp. in the manufacture of hooped petticoats, and in the metal ribs employed in the manufacture of hooped petticoats.
1226. A. L. C. J. Reynaud de Trets, Marseilles—An improved composition for splitting rock.
1227. J. Nasmyth, Surrey-street, Strand—Improved apparatus for obtaining and applying motive power.
1228. C. Law, Wolverhampton—Imp. in the construction of locks.

Dated 18th May, 1859.

1229. R. Romaine, Chapel-street, Bedford-row—Imp. in the means of applying steam power to the cultivation of the soil.
1231. E. Charlesworth, 3, King William-street, Strand—Counteracting the recoil of small fire-arms, and lessening the risk of injury arising from the bursting of the same.
1232. S. N. Evans, Chapel-yard, North-street, Wolverhampton—Improved mechanism for preventing accidents at mines from overwinding.
1233. J. Haslam, Preston—An improved construction of healds or harness used in warp dressing and sizeing machines, and in looms for weaving.
1235. J. Dean, J. Parkinson, E. Riley, and W. Burton, Syke Mill, Haslingden, Lancashire—Imp. in certain self-acting mules for spinning fibrous materials.
1236. W. Nicholls, Tregolls road, Truro, Cornwall—Imp. in portable corn mills.
1237. J. H. Johnson, 47, Lincoln's-inn-fields—Imp. in lubricating certain portions of machinery. (A com.)
1238. R. A. Brooman, 166, Fleet street—Imp. in heating. (A com.)
1239. J. Childs, Windsor-house, Putney—Imp. in hardening and vulcanizing compounds of sulphur with india rubber and gutta percha.

Dated 20th May, 1859.

1240. J. Valda, London—Imp. in stud fastenings, and a system of ornamenting and adapting belts, cravats, ribbons, draperies, and other articles to stud fastenings.
1241. G. Walker, Old Nickol's-street, Church-street, Shoreditch—Certain imp. in swing looking-glasses.
1242. R. Wilson, Patricroft, near Manchester—Imp. in hydraulic machinery.
1243. H. Newman, Liverpool—Imp. in the construction of artificial teeth, and in the mode or manner of affixing the same to the frame.
1245. R. V. Leach, Taibach, Glamorganshire—Imp. in the manufacture of iron, and in the machinery connected therewith.
1246. D. Kirkaldy, Glasgow—Imp. in the manufacture or treatment of steel.
1247. J. H. Johnson, 47, Lincoln's-inn-fields—Imp. in the roasting or calcining of ores, applicable also to the oxidising of other substances. (A com.)
1248. W. Teasdel, Pier, Great Yarmouth—Imp. in coffer dams.
1250. J. P. Budd, Ystalyfera, near Swansea—Imp. in the manufacture of tin and terne plates.
1251. W. C. Cambridge, Bristol—Imp. in thrashing and winnowing machines.

Dated 21st May, 1859.

1253. J. R. Scartliff, Wolverhampton—Imp. in the construction of lubricating and other cans, in order to regulate the discharge or flow of the liquids they contain.
1254. J. Thompson, Witton, near Northwich, Cheshire, and J. Thompson, jun., the Castle, Northwich—The manufacture of salt by an improved and more economical mode.
1255. A. V. Newton, 66, Chancery-lane—An improved construction of cartridge. (A com.)
1256. W. P. Savage, Roxham, Downham Market, Norfolk—Imp. in traction steam engines and machinery for moving agricultural implements and machines.,

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WEEKLY LIST OF PATENTS SEALED.

[*From Gazette, June 3rd*, 1859.]

June 2nd.

2556. D. Frodsham.
2774. J. B. Fisher, J. Fisher, and J. Bird.
2781. H. T. Yates.
2793. D. B. White.
2794. R. A. Brooman.
2808. J. Ferrabee and F. H. England.
2847. M. Schaffner.
2856. R. A. Brooman.
2858. J. Ferrabee.
2870. F. C. N. J. Viellard-Migeon.
2904. E. Weber.
2963. H. Lowe, W. Trueman, and J. L. Pitts.
59. W. E. Newton.
153. R. Garrett, jun., and J. Kerridge.
177. W. E. Newton.
463. S. Wheatcroft.
654. B. Rider.
734. J. Macintosh.

[*From Gazette, June 7th*, 1859.]

June 7th.

2797. J. E. Boyd.
2810. G. F. Chantrell.
2815. A. Lamb & W. A. Summers.
2819. R. L. Burrowes & J. Knowles, jun.
2820. J. Barrow, jun.
2822. J. Eccles.
2825. J. Elder.
2826. J. Stewart.
2827. T. Allen.
2829. H. Wilson.
2830. E. L. Pensuete.
2843. S. Dudgeon.
2869. H. Bridges.
13. W. Eccles.
104. C. N. May.
159. W. A. F. Powell.
647. T. Patstone.

Patents on which the Stamp Duty of £50 has been paid.

[*From Gazette, June 3rd*, 1859.]

May 30th.

1298. T. Wilson.

[*From Gazette, June 7th*, 1859.]

June 2nd.

1424. J. Davis.

June 3rd.

1314. G. J. Mackelcan.
1333. D. Morrison.

June 4th.

1363. C. W. Siemens.
1419. W. H. Barlow and W. H. Woodhouse.
1331. E. Rogers & H. Mackworth.